The NATIONAL GEOGRAPHIC MAGAZINE

Vol. XVI DECEMBER, 1905 No. 12

CONTENTS

PAGE

The Parsees and the Towers of Silence at Bombay, India. By William Thomas Fee, U. S. Consul General, Bombay . . 529

China and the United States. By Sir Chentung Liang-Cheng, K. C. M. G., Envoy Extraordinary and Minister Plenipotentiary from China to the United States 554

What Has Been Accomplished by the United States Toward Building the Panama Canal. By Theodore P. Shonts, Chairman of the Isthmian Canal Commission 558

Russia in Recent Literature. By General A. W. Greely, Chief Signal Officer U. S. A. 562

Published by the National Geographic Society
Hubbard Memorial Hall
Washington, D. C.

$2.50 a Year REPRINT 25 Cents a Number

Entered at the Post-Office in Washington, D. C., as Second-Class Mail Matter

THE NATIONAL GEOGRAPHIC MAGAZINE

AN ILLUSTRATED MONTHLY, published by the NATIONAL GEOGRAPHIC SOCIETY. All editorial communications should be addressed to the Editor of the NATIONAL GEOGRAPHIC MAGAZINE. Business communications should be addressed to the National Geographic Society.

25 CENTS A NUMBER; $2.50 A YEAR

Editor: GILBERT H. GROSVENOR

Associate Editors

GENERAL A. W. GREELY
Chief Signal Officer, U. S. Army

W J McGEE
Chief Department of Anthropology and Ethnology, Louisiana Purchase Exposition

C. HART MERRIAM
Chief of the Biological Survey, U. S. Department of Agriculture

WILLIS L. MOORE
Chief of the Weather Bureau, U. S. Department of Agriculture

O. H. TITTMANN
Superintendent of the U. S. Coast and Geodetic Survey

O. P. AUSTIN
Chief of the Bureau of Statistics, Department of Commerce and Labor

DAVID G. FAIRCHILD
Agricultural Explorer of the Department of Agriculture

ALEXANDER GRAHAM BELL
Washington, D. C.

DAVID T. DAY
Chief of the Division of Mineral Resources, U. S. Geological Survey

ALFRED H. BROOKS
U. S. Geological Survey

ANGELO HEILPRIN
Academy of Natural Sciences, Philadelphia

R. D. SALISBURY
University of Chicago

G. K. GILBERT
U. S. Geological Survey

ALEXANDER McADIE
Professor of Meteorology, U. S. Weather Bureau, San Francisco

ALMON GUNNISON
President St Lawrence University

Hubbard Memorial Hall, Washington, D. C.

Office Hours, 8.30 A. M. to 5 P. M. Telephone, North 306

NATIONAL GEOGRAPHIC SOCIETY

Hubbard Memorial Hall
Sixteenth and M Streets, Washington, D. C.

WILLIS L. MOORE	President	HENRY GANNETT . .	Vice-President
JOHN JOY EDSON . . .	Treasurer	O. P. AUSTIN	Secretary
GILBERT H. GROSVENOR . .	Editor	ELIZA R. SCIDMORE .	Foreign Secretary

BOARD OF MANAGERS

1903-1905	1904-1906	1905-1907
O. P. AUSTIN	HENRY F. BLOUNT	A. GRAHAM BELL
CHARLES J. BELL	C. M. CHESTER	ALFRED H. BROOKS
T. C. CHAMBERLIN	F. V. COVILLE	HENRY GANNETT
GEORGE DAVIDSON	D. C. GILMAN	A. W. GREELY
JOHN JOY EDSON	S. H. KAUFFMANN	GILBERT H. GROSVENOR
DAVID G. FAIRCHILD	WILLIS L. MOORE	ANGELO HEILPRIN
A. J. HENRY	ISRAEL C. RUSSELL	O. H. TITTMANN
C. HART MERRIAM	R. D. SALISBURY	JOHN M. WILSON

The National Geographic Magazine is sent free of charge to all members of the National Geographic Society

---

Recommendation for Membership in the

NATIONAL GEOGRAPHIC SOCIETY

The following form is enclosed for use in the nomination of persons for membership

Please detach and fill in blanks and send to the Secretary

DUES: Annual membership, $2; Life membership, $50. If check be enclosed, please make it payable to order of the National Geographic Society, and, if at a distance from Washington, remit by New York draft or post-office money-order.

_____ *190*____

To the Secretary, National Geographic Society, Washington, D. C.:

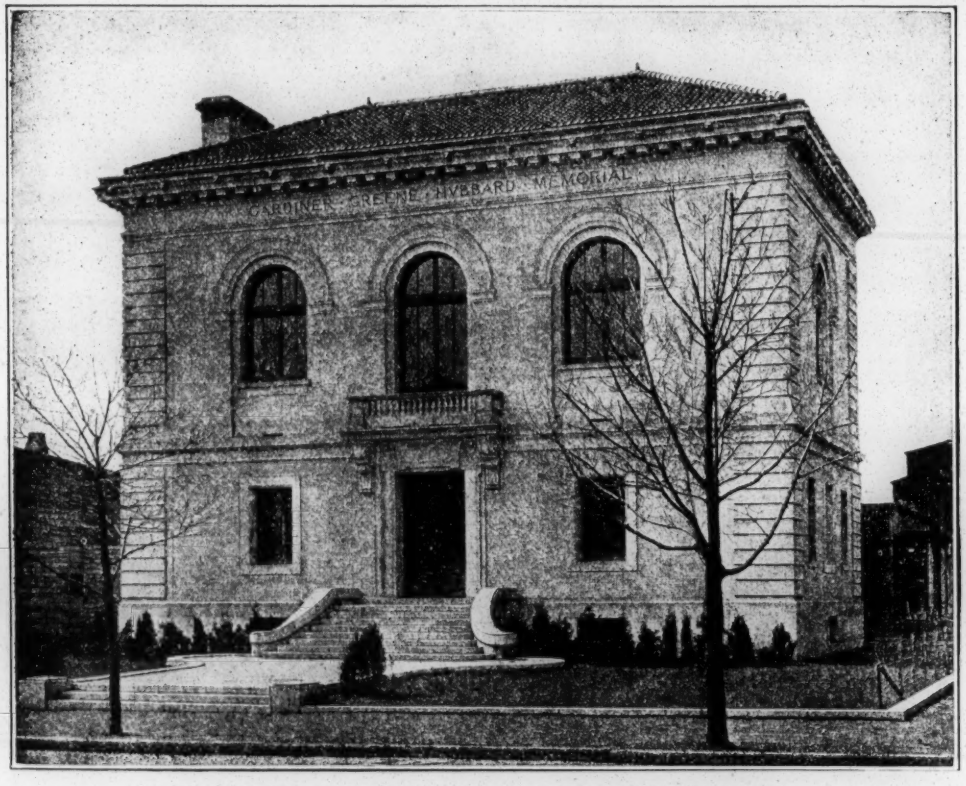
*Please propose*_____

*Address:*_____

_____

for membership in the Society.

_____



THE HOME OF THE NATIONAL GEOGRAPHIC SOCIETY

An Association organized for "the increase and diffusion of geographic knowledge," with headquarters at Washington, D. C.

Old Copies Desired

We will pay the following prices for certain old numbers of the *National Geographic Magazine*, if returned in good condition: :: :: :: :: ::

Vol. 1, 1889, No. 2, $1.50; No. 4, $1.50.

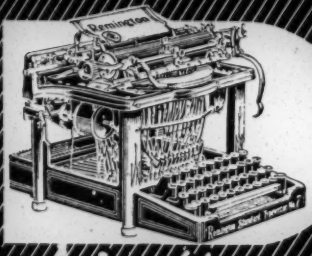
Vol. 2, 1890, No. 1, $1.50; No. 2, $1.50; No. 3, $1.50.

Vol. 4, 1892, No. 1, $1.00; No. 3, $1.00; No. 4, $1.00; No. 5, $1.00; No. 6, $1.00.

Vol. 13, 1902, No. 1, $ .60.

Vol. 15, No. 3, $ .50; No. 5, $ .50; No. 10, $ .50.

The National Geographic Society
HUBBARD MEMORIAL HALL
WASHINGTON, D. C.



Remington

Every Remington Typewriter *Lasts.*

Therefore Remington Supremacy *Lasts.*

Remington Typewriter Co.
327 Broadway, New York.

Washington, D. C., Office: 8th & F Sts. N. W.

VOL. XVI, No. 12 WASHINGTON DECEMBER, 1905

THE NATIONAL GEOGRAPHIC MAGAZINE

THE PARSEES AND THE TOWERS OF SILENCE AT BOMBAY, INDIA

BY WILLIAM THOMAS FEE, U. S. CONSUL GENERAL, BOMBAY

The following story of the Parsee people and the description of the Towers of Silence at Bombay were written at the United States Consulate largely during hours in the night-time, at seasons when the excessive heat of India prevented Dame Nature from performing her part of the "sweet restorer."

It is not claimed that anything new has been told, though it is hoped that some of the old may have been stated in a new light. It is mainly descriptive and written solely for the pleasure and profit of my fellow-countrymen, who of late years have found much of interest in the traditions and customs of the people of India.

I am under great obligations to many Parsees for considerable data and help given me, but especially to my friend, the late Dossabhai Framjee Karaka, the historian.

The drawing and photographic feature is made use of to illustrate the development and individual attainments of members of this remarkable race.

WM. THOS. FEE.

THOUGH comparatively small in point of numbers, the Parsees occupy one of the foremost places among Indian nationalities. Their social position, peculiar customs, manners, and foreign designation are impressively striking to a stranger on his first visit to Bombay. Their story is a romantic tale of a people whose ancestry appeared at the very dawn of history, and who occupied Persia when Abraham was a nomadic wanderer, tending his flocks on the sandy plains beyond the Euphrates. They claim that their ancestral race was the foremost Asiatic nation of their time, whose grandeur, magnificence, and glory were unsurpassed; that their kings were the most powerful and wisest of monarchs, whose armies were renowned for courage and military prowess; that they were valorous and energetic, bringing up their youth to "ride, draw the bow, and speak the truth;" that their heroes were as humane as they were courageous; that their women were as brave as they were fair, and as celebrated for the freedom allowed them as for their modesty.

"RELIGION OF ZOROASTER"

The Parsees are of Persian origin, of the Iranic race, and are supposed to have had a common ancestry, somewhere in West-Central Asia, where man, as we now know him, is said to have had his birth. More than 3,000 years ago their forefathers left the uplands of that mysterious Aryan home from which our own ancestors had already gone forth, and were in all probability the first of the Indo-European family to embrace a purely monotheistic faith.

In religion they are followers of Zoroaster, who was a religious reformer and founder of this ancient Persian religion at a period probably prior to the Assyrian conquest of Bactria, his native country, which is said to have taken place 1,200 years before the Christian era. At all events, the religion of Zoroaster can certainly claim a hoary antiquity which unquestionably challenges our deep respect.

The scripture of this faith, the Parsee Bible, is called the "Zend-Avesta" or, more properly, simply "Avesta," or "Avesta and its Zend." While Zend is understood to mean the translation of the original text and commentary, in the Zend language, the oldest form of Iranic speech known, and to which Dr March gives the name of "Old Bactrian," the Zend-Avesta embraces the whole Parsee religious literature, ancient and modern.

The Avesta proper is one of the most interesting documents coming to us from the early history and religion of the Indo-European family. It is made up of several distinct parts, many of which are fragmentary and of different ages, some of which must be many centuries older than our era. This religious system is a monotheism. It recognizes the dual principle of good or light, and evil or darkness. Fire is its principal emblem, as being the purest of all elements; hence the misconception that its adherents are fire-worshipers. The common charge of worshiping fire, the sun, water, and air, brought against the Parsees, is not well founded. The Parsees emphatically deny the charge, and history gives several accounts of acts of hatred shown by the Parsees toward idolatry.

God, according to the Parsee faith, is the creator, preserver, and ruler of the universe. He is the emblem of glory and light. In view of this a Parsee while engaged in prayer is directed to stand before fire or turn his face toward the sun, because they appear to be the most proper symbols of the Almighty. Such is still the present practice among their descendants in India.

Zoroaster, the Parsee Moses, appears as a being of supernatural endowments and as receiving from the supreme divinity, by personal interviews, by questions and answers, the truths which he is to communicate to men. The idea of a future life and the immortality of the soul pervades the whole of Avesta literature. The doctrine of the resurrection of the body at the time of the last judgment is claimed as a genuine Zoroastrian dogma, without the slightest trace of its being borrowed from a foreign source.

With religion Zoroaster has combined both moral and speculative philosophy in a remarkable degree. In regard to man, he takes cognizance of two intellects—the "Asno-Krato," the innate or born wisdom, and the "Go-ashosruto-Kratu," or acquired wisdom. The Zend-Avesta insists in emphatic terms that "virtue alone is happiness in this world," and its path is the path of peace.

The moral foundation of the Parsee religious works is built upon three basic injunctions, which are pithily expressed in the Avesta, viz., "Humata," "Hukhta," and "Hvarshta," which mean "good thoughts," "good words," and "good deeds."

EMIGRATION TO INDIA

When the Persian Empire of Sassanides was destroyed by the Saracens in 651 A. D., the great mass of the nation was forced to adopt the faith of Islamism, the religion of their Mohammedan conquerors; but a small number clung to the old Zoroastrian faith and took refuge in the wilderness of the Persian province of Khorasan. After much wandering and enduring great persecution and hardship, they, in the eighth century, emigrated to India and made a settlement at Sanjan, in the neighborhood of Surat. Here they lived in the Sanjan country for some seven hundred years in tranquillity and in full enjoyment of their religious rites, under the government of the Hindoo rajahs of Sanjan, Guzerat.

They chiefly occupied themselves in agriculture and industrial pursuits. It is said that they not only turned the face of the territory they occupied from a dreary jungle into a fruitful garden and made it blossom as the rose, but they also enjoyed considerable prosperity.

About the time of the discovery of America the Hindoo rajah's government, under which they lived, was overthrown by a Mohammedan-Afghan conqueror. The Parsees, with a high character for fidelity, were loyal to the Indian kings, who had given them and their ancestors a welcome when they had been driven from their own Persian homes by the same foe. They gathered their forces to the standard of the rajahs, and proved themselves of great valor. The result of the campaign was, however, one of disaster. They were finally dispersed from the Sanjan country and compelled to seek new homes in other parts of Guzerat.

It was probably some time after this event, though there does not seem to exist any authoritative record of the exact date when the Parsees arrived in Bombay. It may, however, be safely said that their settlement in that island was some time before Bombay was ceded to the British, in 1669, by the King of Portugal, as a dowry of Catherine, Princess of Braganza, who became the wife of Charles the Second of England.

As a sect in Persia they have disappeared under religious persecutions, and have sunk into ignorance and poverty, though still preserving a reputation for honesty, industry, and obedience to law superior to that of other Persians.

THEY HAVE RETAINED THEIR INDIVIDUALITY FOR 1,200 YEARS

There seems to be no authoritative information as to the number composing the first exodus to India, or if the Parsee colony was ever materially increased by early additions from Persia. Some traditions have it that there was a paucity of females among them, and that they intermarried with Hindoo women on their first coming to India. This traditional intimation of racial mixture is not well received by the Parsee people of today. However it may have been, there is one thing certain, that if ever the practice did occur it surely was short-lived, as no custom of today is more religiously observed than that of intermarriage among their own people.

For some 1,200 years they have lived among the all-absorbent Hindoos, yet this mere handful of people have not been absorbed. During the last 300 years the transmissive influence of an Anglo-Saxon civilization has been reflected upon them, yet they remain Parsees still. India has in turn been conquered and reconquered by all the great nations of history, from Greek to Britain. Her conquerors have each shaped the affairs of half of the earth. The possession of the Indian Peninsula seems an indispensable requirement for sovereignty in the East. Internecine wars, racial strifes, and caste prejudices have robbed her of her own; pestilence and famine have blighted her fairest flower; yet during all these centuries, amid all the vicissitudes of oriental

life, have lived the worthy descendants of the ancient Persian people, true to their faith, and have substantially preserved and transmitted the main characteristics of their ancestral race. The Parsee stands unique in the history of mankind.

The Parsees of India have been exceedingly prosperous and have steadily increased in number, now being variously estimated at about 100,000 souls. They are most numerous in Bombay. A few have settled in China and remote places in India for the purpose of trade, but these outlying settlements do not contain more than perhaps 4,000 people. It is calculated that about 85 per cent of the Parsees in India reside in the Bombay presidency, which was found by the census taken by the government of India in 1901 to be 78,552. Of these 46,231 reside in city of Bombay.

On the spread of Mohammedanism to India they became again the subject of persecution. Since the occupation of India by the British they have fared better, and now form a peaceful, intelligent, wealthy, and influential community.

PERSONAL CHARACTERISTICS

Physically they are tall and erect, having remarkably small hands and feet, with facial features resembling the Europeans. They have a quickness of action bordering on nervousness. Their hair is jet black and their eyes are dark. In their manners they are exceedingly polite, kind, and hospitable, often putting themselves to great inconvenience to accommodate a stranger. In the habit of diet they are religiously abstemious, and are exceedingly temperate in the use of tobacco and intoxicating liquors.

Excepting, perhaps, fish, fowl, and mutton, they are not a "meat-eating people." Like most oriental nations, a principal food among them is rice, served in curries and in a hundred different ways.

Fully three-fifths of the population of the globe live on rice; the founders of the five great religions of the world were nourished by it. It might be worth while for scientists to look a little more closely into the brain-making qualities of this worthy food.

They were never known to have practiced the barbarous custom of "suttee," the burning of the widow on the funeral pyre with the corpse of her husband, or of following their Hindoo neighbors in the cruel practice of prohibiting their widows, often mere infants, from remarrying. They are also free from the caste system so rigidly practiced by the Hindoos. Since they have freed themselves from Hindoo influences and become amenable to Western civilization, the practice of infant marriage has substantially ceased among them. Their women are treated with respectful consideration and have long since been liberated from the seclusion of the zenana and the use of the purdah.

The long, flowing "saree" of many silken tints, wrapped about the body in graceful folds, gives to the female Parsee a garment of exquisite beauty and rare comfort. It would be a matter of great regret if this graceful dress should give place to modern European fashion, with the tight corset and the high-heeled shoe, that destroy the graceful carriage and health of the wearer.

The Parsee women are generally of good figure and of pleasing and intelligent countenance. Many of them have a light olive complexion and are considered very handsome. They appear to great disadvantage by being obliged to conceal their hair, of which nature has graced them in a most luxuriant manner, under the "mathabana," a custom regarded as a token of feminine modesty. A Parsee historian states that there is no injunction against keeping the head uncovered; yet the Parsees have imbibed the notion, supported by long usage and originally imported from Persia, that it is sinful and contrary to religion to leave

XUM

the head uncovered, either by day or night; hence a Parsee is never without his skull cap or a woman without her "mathabana." The latter is a thin white linen of the size of a small handkerchief.

CUSTOMS AND MANNERS

As a separate community the Parsees have not only their peculiar religion, but also their own moral code, and as a civil body they are not only permitted, but also aided by the state, in inforcing their own laws of marriage and divorce. Their ancient custom governing inheritance and succession has been enacted for them, on their petition, into the form of a legal statute by the empire. They enjoy full religious freedom, and their peculiar customs and manners are fully protected by the liberality of the British rule in India.

For a number of years after they came to India they adhered to the use of their native Persian language; but as time rolled on they gave it up for Gujerati, the language of the Hindoos, among whom they dwelt. Gujerati now forms their vernacular. They are taught English from earliest childhood, and they study in the schools Persian and Sanskrit as classics. They all speak Hindustani, and many of them are fluent in the Persian tongue, in which they keep up communication with their brethren in Persia.

Their worship in the course of time became tainted by many Hindoo practices, and the reverence for the fire and sun, as emblems of the glory of "Ormuzd," naturally degenerated into idolatrous practices. However, the worship in recent years has been restored to its pristine purity, and the sacred fire which Zoroaster is said to have brought down from heaven is kept burning in consecrated spots and temples are built over subterranean fires.

They have a priesthood which, strange to say, are not educators or teachers of the people, as is usually the case in other religious systems, nor are they themselves necessarily educated, but are simply a class of men who perform the ceremonial rites of the religion at marriages and funerals, tend the fires on the temple altars, burn incense, chant hyms, and say prayers.

The Parsee is imbued with a spirit of toleration and is most respectful toward the religions of others. Besides their own sacred days, they observe many of those of the Hindoos. In Bombay they celebrate the holidays of the English and close their shops and places of business on the Christian Sabbath.

There is now a marked desire on the part of the Parsees to adapt themselves to the manners and customs of the Europeans. The Parsee mode of life may be described as an eclectic ensemble, half European and half Hindoo. As they advance every year in civilization and enlightenment, they copy more closely European manners and modes of living, adopting the bad with the good—regretfully too much of the former. A Greek historian has remarked that of all nations the ancient Persians were most distinguished by their readiness in imitating foreign manners and customs. This peculiarity their descendants have retained to the present day.

During their sojourn in Guzerat they willingly adopted the language, dress, and other social customs of that country, and they now have taken as completely to English manners and customs, so much so that when they speak of "going home" they mean to England. The educated and influential classes have already adopted in their domestic life the comforts, conveniences, elegancies, and, we may also add, the costliness of the European style.

The domestic arrangements of their houses have also undergone, of late, vast changes. Their houses are generally built in good taste, upon well-conceived

plans, and they are well ventilated. Their villas or garden houses are some of the best in Bombay. The drawing-rooms are richly furnished and decorated and the walls adorned with landscapes and historical pictures, while the particular boast of a Parsee is to have his house brilliantly lighted with many lamps and chandeliers of every description.

A great improvement has taken place among the Parsees in their mode of taking meals. Years ago they used, like the Hindoos, to eat them squatting on the ground, and the viands were served to them in a brass dish, on which they were all spread out at the same time, a practice still in vogue among the poorer classes. The better classes have for a long time past adopted the table and chair, with all the usual accompaniments of a European dinner. At large parties the table is spread out in English fashion, instead of as formerly, when hundreds sat in a line in rows upon an oblong sheet of cotton cloth laid upon the floor, each eating his food off a plantain leaf upon which it was laid out.

The public and private schools of Bombay are largely attended by their children, and every effort is made to procure translations of standard English books. As a matter of fact it may be said that the Parsees are very progressive, and that it is only necessary for them to understand the value and advantage of whatever may be offered them to induce them to accept it with eagerness.

PUBLIC-SPIRITED GENEROSITY

At present they seem to have lost all their military spirit. Many follow commercial and mercantile pursuits, some of them being the wealthiest merchants in India, while others have obtained high favor in government offices or have won distinction by reason of their charitable gifts. Four Parsees have been especially honored by the late Queen Victoria. The heads of two families have been made baronets—Jamsetjee Jeejeebhai and Dinshaw Maneckjee Petit—and knighthood has been conferred upon the late Kavasjee Jehangir Readymoney and M. M. Bhownagree, at present representing the district of Bethnal Green in the British House of Commons.

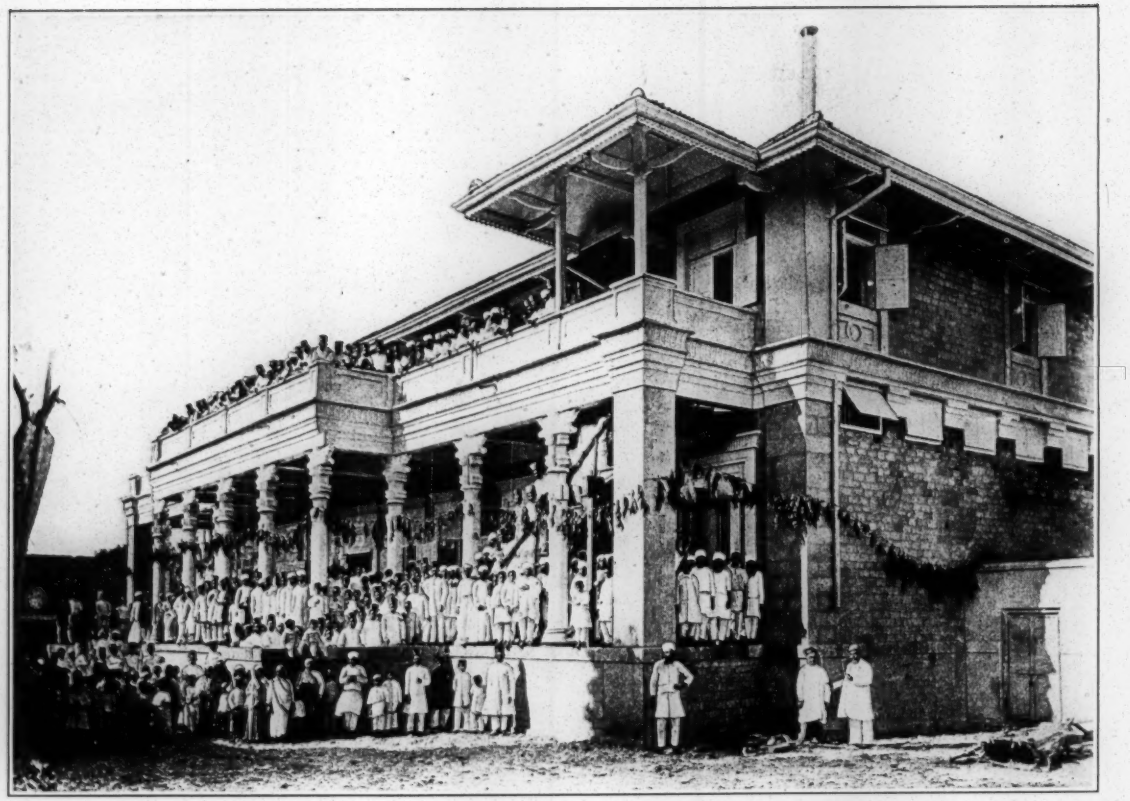
They provide for their own poor and infirm. Strikingly strange, one never sees in Bombay a Parsee soldier, servant, or beggar.

But their faultless generosity is broader than their race, and many of the fine public buildings, colleges, and hospitals, of which Bombay is justly proud, owe their origin and maintenance to the liberality, wealth, public spirit, and genius of the Parsees. Indeed, it is a most significant fact that the one hundred thousand followers of Zoroaster who still tend the sacred flame, in spite of their numerical insignificance, play so large a part in the development of India.

A comparison of the political standing and social surroundings of the Parsee community in Bombay with that of their sister community in Persia furnishes one of the most remarkable examples in the whole range of English history of the beneficence of British rule.

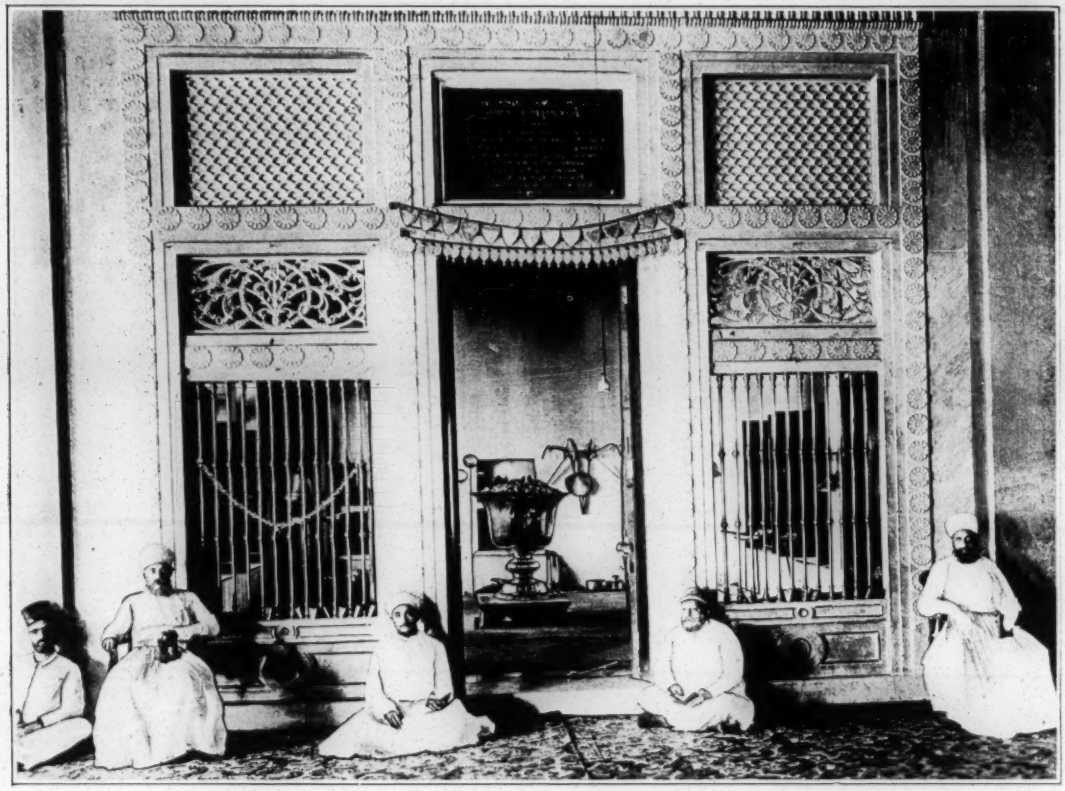
It is interesting to relate that the Parsees of Persia have been helped by their wealthy kinsmen in Bombay, especially as regards their education and the lightening of their political burdens. The rupees which the Parsee community has spent till now for the alleviation of the sufferings of their followmen, irrespective of caste or creed, are to be counted in crores, and one of the happiest and most remarkable features of it is that this spirit of catholic charity burns not only at home—that is, in the country which they have adopted as their own—but wherever they take themselves, either for the pursuit of business or pleasure.

XUM



Fire Temple at Udvada

In fulfilment of a vow made by the Parsees on their voyage to India, when they were overtaken by a severe storm, they founded a great fire temple in about the year 790 A. D., at Sanjan. This was the first fire temple founded by the Parsees in India, and is known by the name of "Iran Shah." Today there is kept burning at "Udvada" the same sacred fire that, according to the Kisseh-i-Sanjan, was lighted on the Gujerati coast 700 years before Columbus discovered America.



Interior of Fire Temple

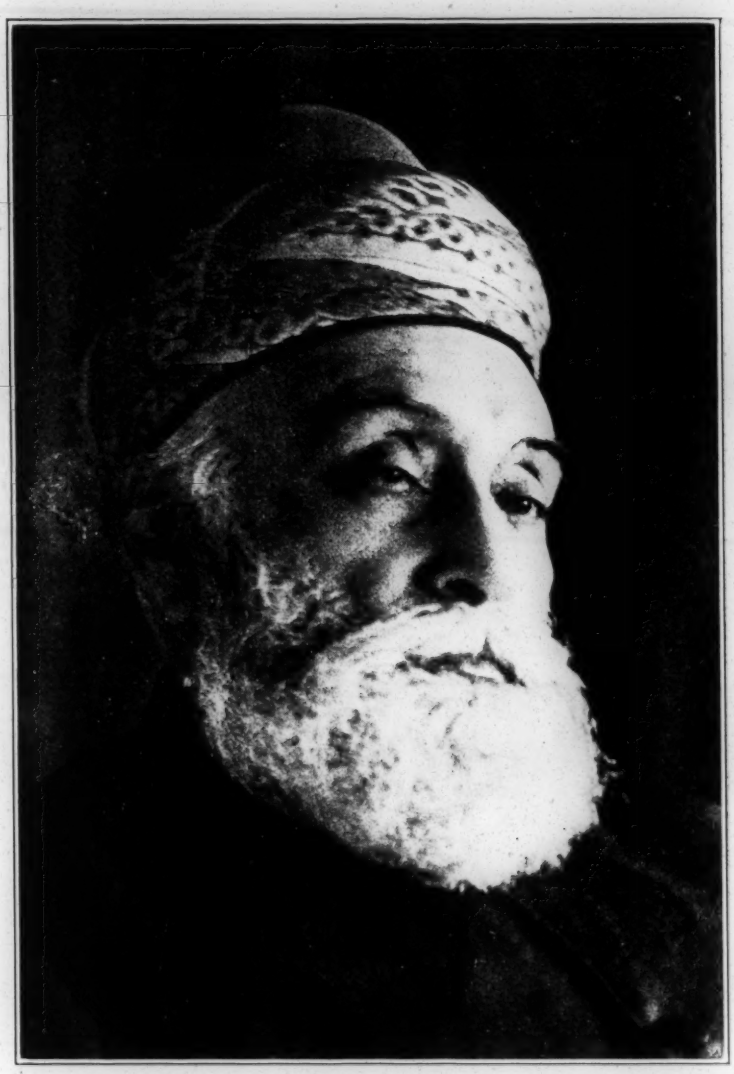
There are some thirty fire temples in Bombay. The picture shows the sacred fire and attending priests in the Anjuman, or Community, fire temple at Dhobie Talao, Girguam Road, Bombay.

HIGHLY EDUCATED AND PROGRESSIVE PEOPLE

It will be of interest to note the per cent of literacy of this people in comparison with the principal races of the Bombay presidency, as obtained by the last government census. The population of the presidency of Bombay, including the native states, is given at 25,435,000 of people. The literacy of the inhabitants of the entire presidency is given at 6.4 per cent. The literacy of the Hindoos is given as 60; the Mohammedans as 41; the Jains as 270; the Brahmins at 320; the Parsees at 650 per 1,000 of their respective people. In point of intelligence, education, wealth, refinement, and public charity, the Parsee stands preëminently at the head of all the races of Western India.

There are perhaps few, if any, large cities where the death rate approaches that of Bombay, yet it speaks well for the sanitation and vitality of the Parsee community, on observing the comparative death rate of the different races in Bombay, that the Parsees are next lowest to the Europeans. It might be further stated that the European in India

A Parsee Lady in Regulation Dress



Jamsetjee Nusserwanjee Tata, the Business Prince and Philanthropist of Bombay

By commerce, trade with China, and cotton manufacture Mr Tata has accumulated vast wealth. His firm has branch houses and representatives in the principal cities of the world, and he has become one of the foremost business men of his race, and of India. His city residence in Bombay is palatial and his hospitality unbounded. He is the most loyal subject of the King Emperor, yet one of his present great aims is to develop some of the vast resources of India.

He has recently visited America to learn something of her manufacturing skill and methods, that he might be enabled thereby to reduce the iron ores of which India is so rich.

He has set aside thirty-two lakhs of rupees (one million dollars, gold) of his wealth for the founding of an "Indian University of Research," for the purpose of affording facilities for original scientific research and investigation in the broadest sense possible.

Mr. Tata is a leader in the building improvement of Bombay. The vast hotel which he is constructing is a monument to his public-spiritedness and will reflect great credit upon the city. It is built of basalt rock, is seven stories high, covers two squares of ground, and fronts on the Bay of Bombay, over which it has a magnificent outlook. It has been building for the past five years, and is now nearing completion, at an estimated cost of more than twenty-one lakhs of rupees (about seven hundred thousand dollars, gold).

He intends to make it "not only the finest hotel in India, but in all the East."

XUM

From Stereograph, copyright, by Underwood & Underwood

A Parsee Schoolmaster and His Class of Boys

Navrozjee Maneckjee Wadia, C. I. E.

A Parsee merchant and a companion of the Most Eminent Order of the Indian Empire. He is reputed to be the richest man in Bombay. His mother, the late Bai Motlibhia Maneckjee Wadia, has endeared her memory for many generations to come by her munificent charitable gifts. Mr Wadia will leave by deed of trust his entire vast fortune to universal charity and relief of the distressed, without distinction of nationality, race, cast, color, sex, or condition. He is also the Bearer of the Cross of the Legion of Honor, conferred upon him by Napoleon III.

A Parsee Bride and Groom

A promising barrister-at-law of Bombay, with his handsome bride

invariably sends his children home. The fact is there are but very few European children in Bombay, and the European population consists mainly of the adult class; hence the death rate among them would naturally be the minimum. The Parsee has many children; therefore it can be well stated that the mortality rate is decidedly in favor of the Parsee.

A Parsee School Girl in Regulation Dress

The reason that brought a custom into life in the East may have long since ceased to exist and is perhaps forgotten, yet the custom may be continued. On seeking to learn why, one is met with the answer, "It is an immemorial custom" or "It is part of religion," when in fact religion has little to do with it. But religion has a broad back.

After some devastating famine in times gone by cattle became scarce, and to encourage their increase became a necessity. The cow with the high hump was selected by the Brahmin caste or some powerful rajah and pronounced sacred; hence she was permitted to propagate and roam at will; yet today it would seem difficult to give a reason why one kind of a cow more than another, or even why any, should be considered sacred.

SOME PECULIAR CUSTOMS

In the early days the use of soaps and disinfectants were unknown. The urine of cows was found to contain an element of ammonia. The Parsees were taught to use it for cleansing and purifying purposes and as a disinfectant. Surely the reason for the practice of this disgusting and filthy habit has long ceased; yet, strange to say, it is still continued in use today, and it is even said to have a religious sanction. A corpse, though it may have died of plague or other contagious disease, is first washed and disinfected (?) with the product of the cow before being borne on an open bier through the public streets of Bombay to the Towers of Silence.

In connection with the ceremony of the dead, the face of a deceased Parsee is exposed three or four times to the gaze of a dog during the funeral oration and the dog is finally led, following the corpse, to the Towers of Silence. One is told that the dog is supposed to guide the soul of the dead toward heaven and to ward off the bad influences of evil spirits to which it may be exposed. The exact object and meaning of this strange ceremony cannot be satisfactorily given. The better-educated Par-

sees claim that there is no reason for it, and none seems to be found. It is a striking example of a custom being continued after the reason has ceased to exist or at least has been forgotten.

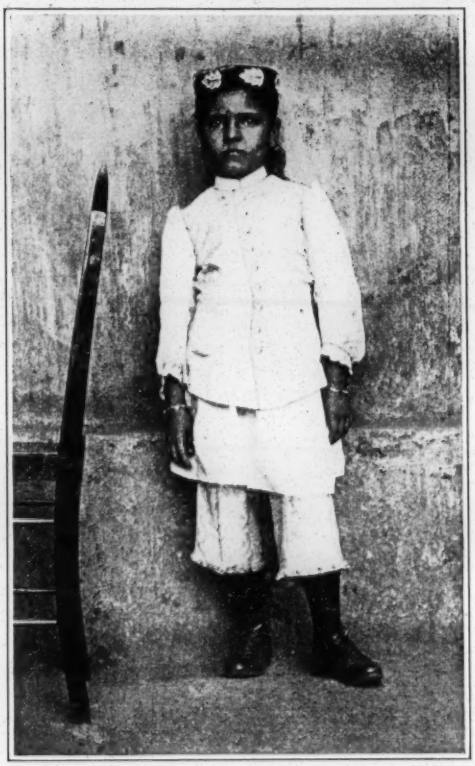
Another odd custom in vogue among the Parsees is that the name of the father is given to the son as a surname. For instance, if a Parsee of the name of "Framjee Dossabhoy" had a son whose name was Maneckjee, his full name would be "Maneckjee Framjee." When again his son had a son whose name was Jehanjir, his full name would be "Jehanjir Maneckjee." The grandfather's name is dropped entirely within three generations.

Sometimes the name of a distinguished ancestor is added after the father's name, but this is not even continued for more than a few generations. This practice has a tendency to destroy the family unit and lessen its influence and magnify the caste or tribe.

While the general voice of the Parsee community seems to be unfavorable to the admission of aliens to the Zoroastrian faith, and the trustees of the principal Fire Temple in Bombay have prohibited such persons from entering its sacred precincts, nevertheless proselytism to the religion does occasionally occur. Parsee priests are to be found whose objections can be overcome and who will permit the sacred precincts of the Fire Temple, over which they preside, to be invaded by alien converts to the Parsee faith.

MARRIAGE CEREMONIES

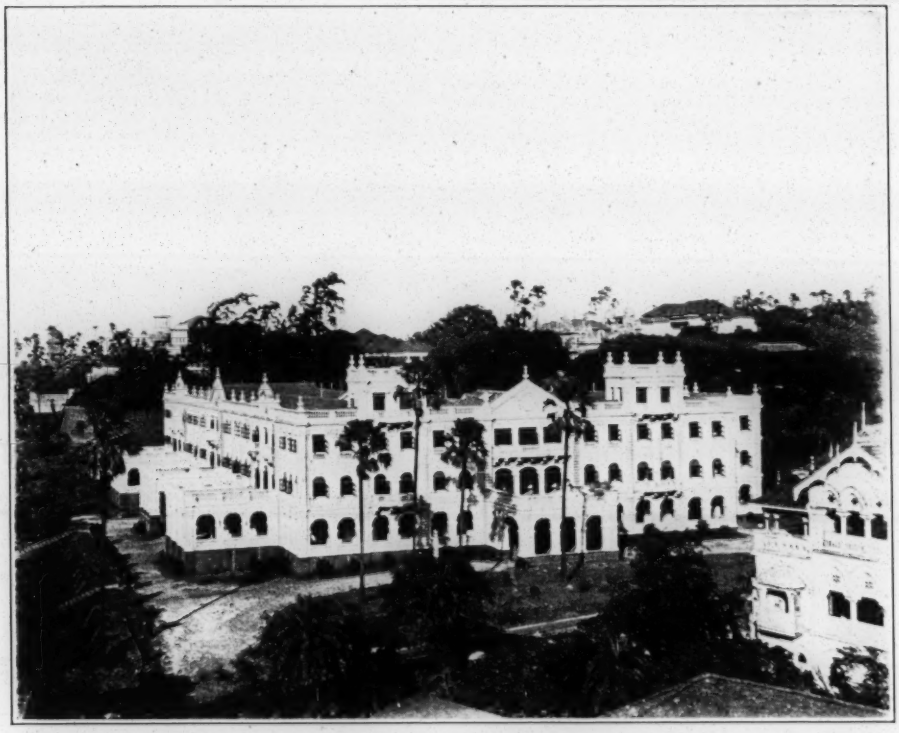
The Parsees, owing to their coming in contact with the Hindoos, adopted a number of their customs, among which was unfortunately included the practice of infant marriage. Hindoos are most strictly enjoined by their "Shastras" to have their girls married before they have reached the age of nine years. Great disgrace is attached to the parents on their failure to do so. The Parsees seemed to have participated in this idea, and consequently practiced, until within recent years, infant marriage of their daughters. This custom is now no longer followed by the Parsees in Bombay, but instances of the kind, we are informed, may still occur in some out-of-the-way place in Guzerat, where the



A Parsee School Girl in Regulation Dress

light of a higher civilization has not yet dawned. The most sensible persons among them have always disapproved of the absurd custom, and it may be stated that the practice of infant marriage among the Parsees is now a custom of the past.

Marriages are generally arranged by the parents of the contracting parties.



The Framjee Dinshaw Petit Parsee Sanitorium

A handsome structure for a noble purpose, built out of a fund set apart by the late Mr Framjee Dinshaw Petit for the benefit of his Parsee community.

The length of the building is 293 feet and the depth is 75 feet. It can accommodate thirty-six families in all—twelve on each floor. To each of such families two rooms are assigned, with a bath-room, kitchen, and other necessary arrangements.

A noticeable feature in connection with the sanitary arrangements of the building is the introduction of the "Macerating Bacteriological Tanks" for the disposal of sewage and sullage.

The cost of the building, including grounds, is nearly five lakhs of rupees.

Sometimes they may commission a match-making priest to find a suitable party for their child. The horoscope of the boy, as well as that of the girl, may be examined by the professor of astrology to determine whether the respective stars of the proposed pair are in harmony. The wealth, position, and social standing of the parents are thoroughly investigated and considered. When the heads of both families have been satisfied and approval given as to the suitability of the match, the betrothal takes place, usually at a day fixed by the astrologer. There is little ceremony attending this occasion, and it is considered to be made binding by the exchange of presents.

For several days preceding the date of marriage, which is usually fixed on certain days of the year supposed to be propitious for such ceremony, a succession of dinners and "natches" are given to friends of the family. It is customary

Sir Jamsetjee Jijibhai, Third Baronet

He represented the city of Bombay at the Coronation of King Edward VII, and is by common consent the recognized head of the Parsee community of Bombay.

The vast wealth of his family has built bridges and reservoirs, founded and maintained universities, colleges, hospitals, schools, and charitable funds for the benefit of all races, without regard to cast, color, or creed.

on these occasions to make exchange of presents between the kinsmen of the bride and groom. The bride is also presented with valuable ornaments by the proposed father-in-law. Many thousands of rupees are spent upon these antenuptial festivities.

On the wedding day a large number of friends are invited by the contracting parties to witness the nuptial ceremony. Following the custom of the Hindoos, the wedding always takes place after the sun has set, in accordance with the promise given to the Rajah of Sanjan by the Parsees on their first landing in India. The wedding guests, when assembled, to the number frequently of one thousand and more—the men in full Parsee costume snow white, the ladies arrayed in rich jewelry and dresses of variegated colors, splendidly ornamented with gold and embroidery, the evening enlivened by the music of a band—form a beautiful scene, rarely witnessed in any other part of the globe.

Bouquets of flowers, upon which rosewater is sprayed from a golden jar, in order to give them a perfume, are passed among the guests. Packets of "pan-supari," made of the nut of the arica palm, upon which a portion of chunam or lime is smeared, wrapped in the leaf of the beetle vine and pinned together with a clove, are distributed to the guests.

The procession of the bridegroom was formerly attended with great splendor and state, as is still the practice of the Hindoos. Gaily comparisoned horses, chariots, and sometimes elephants are used to convey the bridegroom to the home of the bride. On reaching the home of the bride, the bride and groom are seated opposite each other in chairs, placed on a carpet or large rug, and the guests and relatives are seated in circles about them.

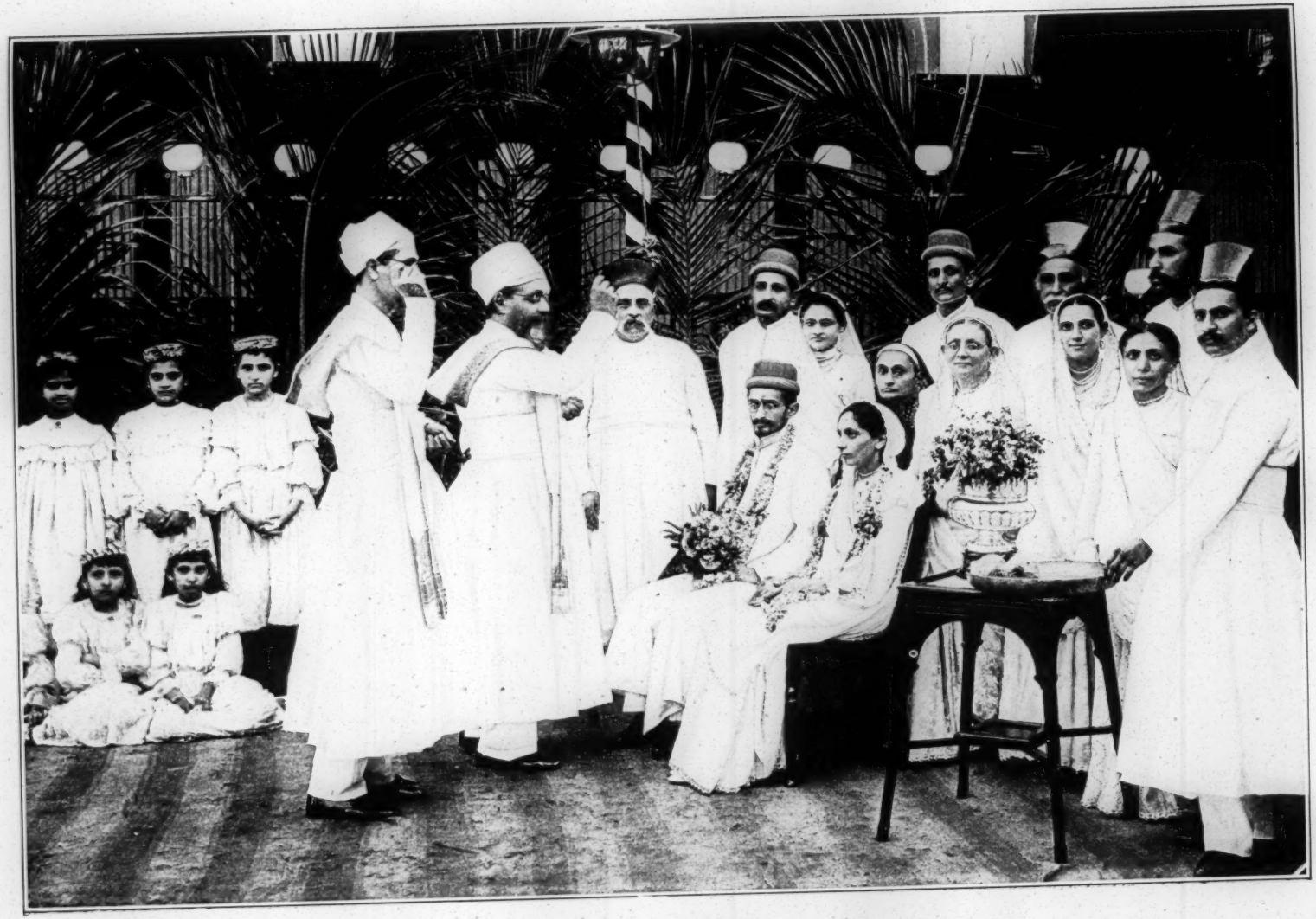
For the following details the writer has abbreviated from a description of a marriage ceremony furnished him by his good friend, the late Dossabhai Framjee Karaka:

A piece of cloth is held between the bride and groom, as a curtain, so as to screen them from each other's sight. Under this curtain they are made to hold each other's right hand in their grasp. Then another piece of cloth is placed around so as to encircle them, and the ends of the cloth are tied together in a double knot. In the same way raw twist is taken and wound round the pair seven times by the officiating priests, who during the performance repeat the short prayers of Yatha Ahu Vairyo.

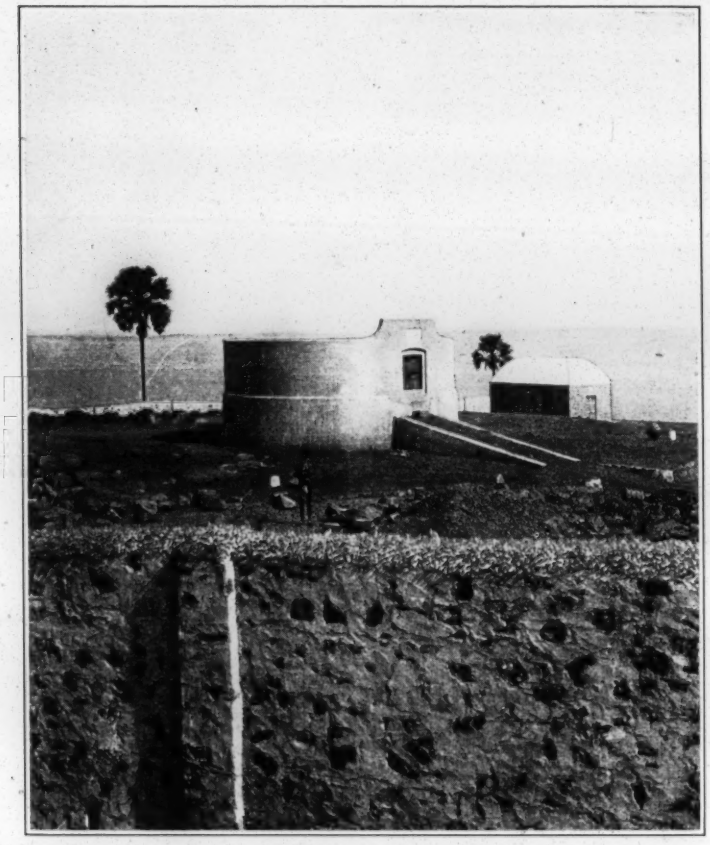
On completing the seventh round the twist is tied seven times over the joined hands of the couple, as well as round the double knot of the ends of the cloth previously put about them. When this is over incense is burnt on a fire placed in a flat metallic vase, after which the curtain is suddenly dropped down and the bride and bridegroom, who have each beeu provided with a few grains of rice, hasten to throw them at one another. This is followed by a clapping of hands from the ladies seated around the bridal pair, and the applause is taken up by the gentlemen outside.

After throwing the rice the couple sit side by side, when the recital of "ashirwad," or blessings, by two "dasturs," or chief priests, follows; one of these stands before the bride and the other before the bridegroom.

The holding of the curtain between the bride and the bridegroom and its subsequent removal are meant to show that up to the time of the ceremony they were separated from each other, but that they are so no longer. Their being made to sit opposite to one another at first and side by side a little later on also expresses the same notion. The grasping of their right hands by each other and their being tied by a string signify that they are thenceforth united. The putting round of the string and the cloth, so as to encircle them with a double



A Parsee Wedding

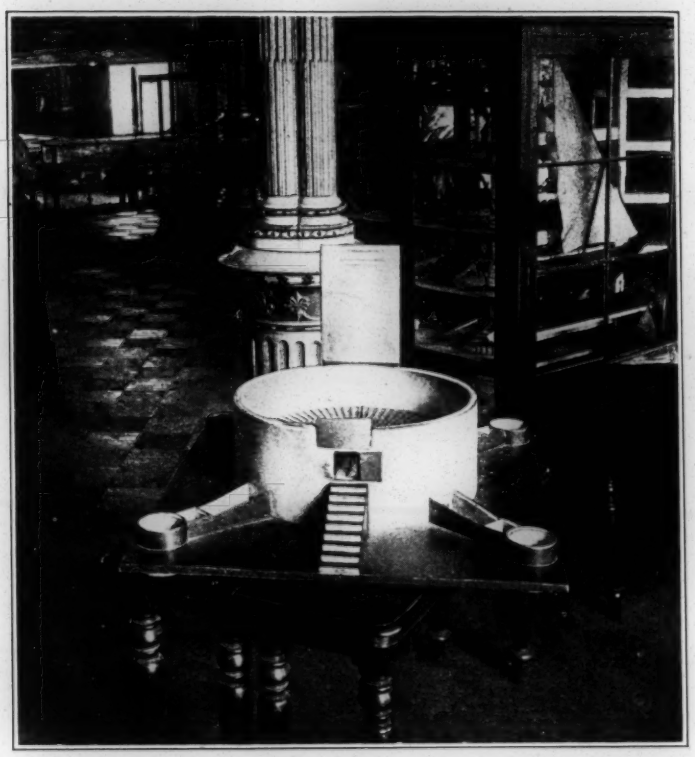


The Tower of Silence and Fire Temple at Uran

The photograph was taken from a rock in the cliffs of the overhanging mountains by an artist especially sent out by Messrs Underwood & Underwood, of New York. The Tower has been but recently dedicated, and hence the grounds are yet unimproved. The wall, capped with broken glass, that surrounds the grounds is noticeably in the foreground. The Tower is not a large one. The inclined pathway to the door that admits the corpse and pall-bearers is very distinctly shown. The oblong white arched-roofed building to the right, near a targola palm, is a small Fire Temple, where the sacred fire is ever burning, and is used by the mourners for prayers.

knot at the ends, means that they are now joined and made one. The object of using raw twist, and of its being put round them seven times, is to show that while raw twist itself can be very easily broken, when it is strung round seven times and twined into one it forms so strong a band that it cannot be broken by ordinary strength, thus implying that the love and affection of the husband and wife for each other should be so strong that nothing can undo it.

The reason for the twist being strung round seven times is because this number is held to be very auspicious among the Parsees, there having been seven archangels, seven heavens, and seven continents known to the ancient Per-



A Model of a "Tower of Silence"

This model gives a fair idea of a Tower of Silence; the circular wall, steps, drainage wells, the door, and also the inside construction are exactly represented in miniature.

sians. Lastly, the throwing of a few grains of rice upon each other is watched with much interest by the friends and relations of the bride and bridegroom.

The eyes of all, particularly of the ladies, are upon the pair to see which succeeds in throwing first the rice as soon as the curtain is withdrawn. The one who succeeds is supposed to evince the more love and affection of the two.

Then the senior "dastur" begins the more solemn part of the marriage ceremony, and pronounces the following blessing: "May the omniscient Lord bless you with many sons and grandsons, with good livelihood, heart-ravishing friendship, and an existence of one hundred and fifty years."

Portions of the brief address which follows the blessing are given below.

By the helping name of Ahura Mazda may your happiness increase.
May you be brilliant.
Try to do good deeds.
Be increasing.
Be victorious.
Learn to do good deeds of piety.
Be worthy to do good deeds.
Think of nothing but the truth.
Speak nothing but the truth.
Do nothing but what is proper.
Shun all bad thoughts.
Shun all bad words.
Shun all bad actions.
Praise deeds of piety.
Commit no acts opposed to piety.
Praise the Mazdayasnan religion.
Do nothing without mature consideration.
Acquire wealth by good means.

Say what is true before your superiors, and act according to their orders.
Be courteous, sweet-tongued, and kind toward your friends.
Do not indulge in scandals.
Avoid being angry.
Do not commit sins for the sake of avoiding shame.
Do not be ambitious.
Do not torment others.
Do not entertain wicked jealousy.
Do not be naughty.
Treat your friends in a way agreeable to them.
Do not enter into any discussion with persons of illfame.
Speak in an assembly after great consideration.
Speak with moderation in the presence of kings.
Preserve the good name of your father.
In no way annoy your mother.
Keep yourselves pure by means of truth.
Be immortal like Kaikhosru.
Be well-informed like Kaus.
Be as brilliant as the sun.

From Stereograph, copyright, by Underwood & Underwood

Tower of Silence

Where vultures devour the Parsi dead, Malabar Hill, Bombay, India.

Avoid evil thoughts.
Avoid evil passions (revenge).
Deprive not others of their property.
Keep away from the wives of others.
Be industrious in following good professions.
Do good to the pious and to the virtuous.
Do not quarrel with the revengeful.
Never be a partner with an ambitious man.
Do not become a companion of a backbiter or a scandal-monger.
Do not join in company of persons of illfame.
Do not coöperate with the ill-informed.
Fight with your enemies only by fair means.
Be as pure as the moon.
Be as illustrious as Zarthosthra.
Be as strong as Rustam.
Be as fertile as the earth.
As soul is united with the body, so be you united, friendly with your friends, brothers, wife, and children.
Always keep good faith, and preserve a good character.
Recognize only Ahura Mazda, the omniscient Lord, as your God.
Praise Zoroaster as your spiritual leader.
Treat Ahreman, the evil spirit, with contempt.

When the ceremony has been concluded the bridegroom, accompanied by his friends, retires to his own house, where they all sit down to a banquet. The bride's party are entertained by her father. The ladies are first served, and when they have left the table it is prepared for the gentlemen.

The Parsees, from their earliest sojourn in India, have refrained from eating meat on the day of marriage, to avoid giving offense to the feelings of the Hindoos. The viands, therefore, consist of fish, vegetables, sweetmeats, fruits, preserves, and similar articles. Wines are drunk freely, and several toasts are proposed by the company, including the health of the wedded pair, their parents, and the chief men of the assembly. After dinner the ladies retire to their own houses, but the gentlemen sit till a late hour enjoying the pleasures of a "natch," or of a band that follows. A repetition of the nuptial benediction is also performed by the priests after midnight before a few select friends and relatives.

As the couple are invariably young, separate accommodation is seldom allotted them after their marriage, nor even when they have attained adult age do they leave the parental roof. They live in the same house with the other members of the family.

Though a father has six or seven sons they all reside, with their wives and children, in the house of their sire, and the gray-headed old man is often able to look with pride and pleasure upon the group of children and grandchildren around him.

THE TOWERS OF SILENCE

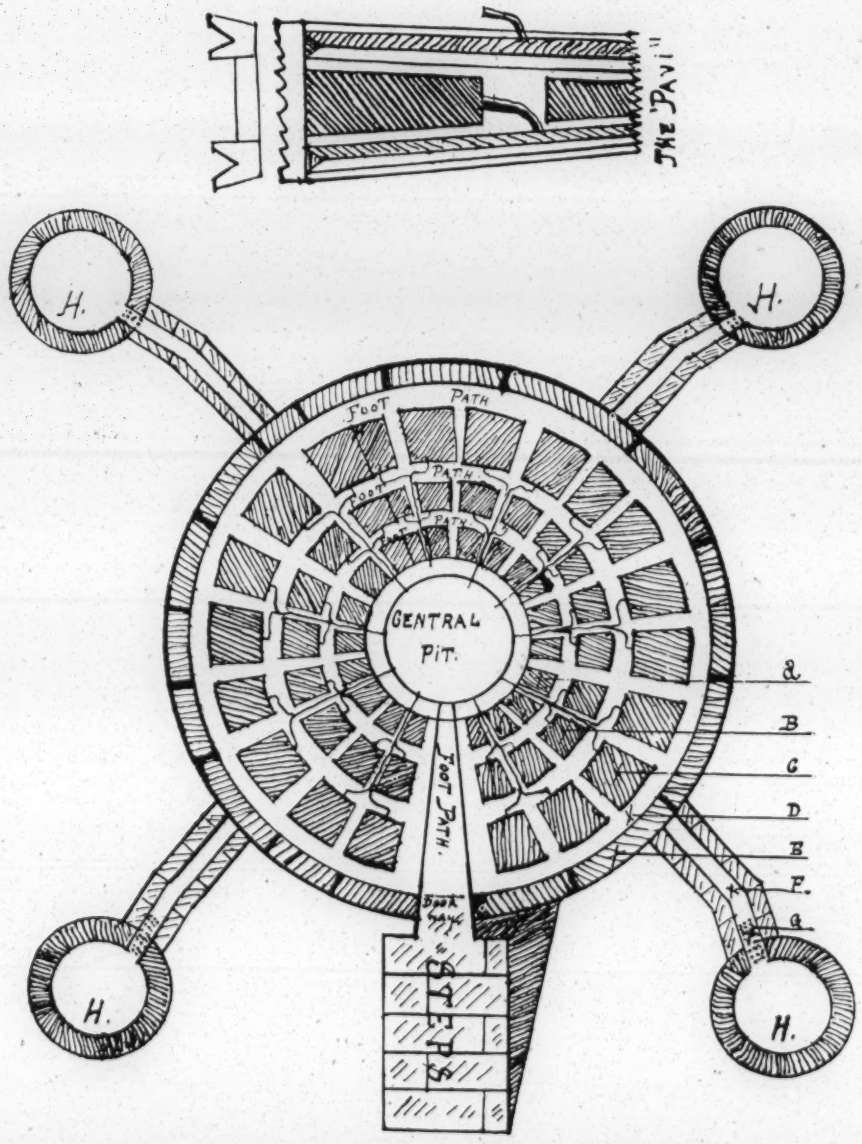
Mr John Fryer, who arrived in Bombay in the year 1671, says in his book of travels: "On the other side of the great inlet to the sea is a great point abutting Old Women's Island, and is called Malabar Hill; a rocky, woody mountain, yet sends forth long grass. At the top of all is a Parsy tomb, lately reared. On its declivity, towards the sea, the remains of a stupendous pagod, near a tank of fresh water, which the Malabars visit it mainly for." This "Parsy tomb," or "dokma," as it is called in the vernacular, still exists on Malabar Hill.

In accordance with religious injunctions, the Parsees build their Towers of Silence on the tops of hills, if available. No expense is spared in constructing them of the hardest and best materials, with a view that they may last for centuries, without the possibility of polluting the earth or contaminating any living beings dwelling thereon.

On Malabar Hill, a long, prominent, rocky ridge, paralleling and overlooking the Arabian Sea, are built the "Towers of Silence." They are five in number, the one mentioned by Dr Fryer now more than 230 years old; another for the use of suicides only, and three others.

They are surrounded by about sixteen acres of ground, artistically laid out and planted with beautiful flowers and tropical plants. Just inside the entrance gate is a peculiarly constructed building, set apart for a fire temple and a house of prayer. These "Dokmas," or "Towers of Silence," are built upon one plan, but their size may and does vary. The largest of them measures 276 feet in circumference, or about 90 feet in diameter, surrounded by a circular wall, 20 to 30 feet in height, built of the hardest stone, and faced with chunam or white plaster. There is an opening or door just above the ground level, through which the dead bodies are carried by professional corpse-bearers, who have gone through certain religious ceremonies and who are alone privileged to carry the corpses into the tower. No one else can enter or touch them.

That an intelligent idea may be given I have annexed hereto a ground plan of a tower of silence. Inside the tower



Ground Plan, Towers of Silence, Malabar Hill, Bombay

a. Row of Pavi for children.
b. Row of Pavi for females.
c. Row of Pavi for males.
d. Foot paths.
e. Outer wall.
f. Underground drain.
g. Charcoal filter.
h. Undergronnd well

is a circular platform, about 270 feet in circumference, and entirely paved with large stone slabs, and divided into three rows, called "pavis," for the bodies of the dead. As there are the same number of pavis in each concentric row, they diminish in size from the outer to the inner ring.

THE DISPOSAL OF THE DEAD

The outside row is used for the bodies of males, the next for those of females, and the third or inner row for those of children. These receptacles or "pavis" are separated from each other by ridges called "dandas," which are about an inch in height above the level of the pavis, and channels are cut into the pavis for the purpose of conveying all the liquid matter flowing from the corpses and rainwater into a "bhandar" or a deep hollow, in the form of a pit, the bottom of which is paved with stone slabs. This pit forms the center of the tower.

When the corpse has been completely stripped of its flesh by the vultures, which is generally accomplished within an hour at the outside, and when the bones of the denuded skeleton are perfectly dried by the powerful heat of a tropical sun and other atmospheric influences, they are thrown into this pit, where they crumble into dust, the rich and poor thus meeting together after death in one common level of equality.

Four drains are constructed leading from the bottom of the pit. They commence from the surroundiug wall of the bhandar and pass beyond the outside of the tower into four wells sunk in the ground at equal distances. At the mouth of each drain charcoal and sandstones are placed for purifying the fluid before it enters the ground, thus observing one of the tenets of the Zoroastrian religion, that "The mother earth shall not be defiled." The wells have a permeable bottom, which is covered with sand to a height of 5 to 7 feet.

However distant may be the house of a deceased person, whether rich or poor, high or low in rank, he has always a walking funeral. His body is carried to the Towers of Silence on an iron bier by official corpse-bearers, and is followed in procession by the mourners, male relatives, and friends, dressed in white flowing full-dress robes, walking behind in pairs, and each couple joined hand in hand by holding a white handkerchief between them in sympathetic grief.

This mode of disposing of the dead, which the Parsees have practiced for countless generations, is repulsive to the sentiment of nations accustomed to bury their dead in the ground ; but it is thoroughly sanitary, and clears away most effectually one of the greatest difficulties encumbering the path of sanitary reformers in great cities.

According to their religion, earth, fire, and water are sacred and very useful to man, and to avoid their pollution by contact with putrefying flesh, the faith strictly enjoins that the dead bodies shall not be buried in the ground, burnt, or thrown into the rivers or sea. They further claim that it really carries out the doctrine of the equality of man more satisfactorily than burying or burning, since the bones of the whole community, rich and poor, rest together at last in the well within the Tower of Silence.

A dismal impression is made at first thought upon the foreigner by these towers, where absolute silence has reigned for centuries, and where, within the last half century, more than fifty-thousand Parsees have been exposed.

THE VULTURES

It is estimated that some five hundred vultures make their homes in the lofty tropical palms in the gardens that surround the towers, and when a corpse is exposed in one of them they swoop down and do not rise again until all the flesh has been devoured. Within its silent precinct they are secluded and free from

all outside interference, and I have been told by those who have watched for the purpose that they never rise to the top of the tower with any substance whatever. They are disqualified by the form of their weak, little curved, unretractile talons from seizing or carrying away living prey.

These birds lay two eggs at a time, and are said to produce but once a year. Like the American eagle, they build their nests in inaccessible rocks and places remote from the hands of man.

These jackals of the air are large in size and have remarkably keen sight. They have naked heads and necks, a broad, powerful, hooked bill, and strong, thick legs. They are gregarious, slow in flight, gluttonous of habit, and prefer carrion to living prey.

In view of the fact that the corpses of all Parsees, regardless of the cause of death, even of the most contagious fever, smallpox, Bombay plague, or cholera, are thus exposed in the towers, it is remarkable that these vultures have never been known, so far as investigation can determine, to spread the contagion or suffer from it themselves. When all is over they come to the top of the towers, where they sit for hours without moving.

There is nothing of a sacred character ascribed to the birds which admirably perform this disgusting though useful work in the economy of nature. The fact is that there is no unpleasant taint of this charnel-house in the grounds about the towers, there being not the faintest odor of death to mingle with the perfume of the flowers blooming in this beautiful garden.

Europeans may regard the Parsee system as barbarous and repugnant to civilized ideas. The Parsees are quite as much justified in so regarding our system of sepulture. The undoubted fact remains that from the sanitary aspect the Parsee system is infinitely the better of the two. True, we do not like to think of the vultures hovering around the funeral procession for the last few miles, or of others awaiting it, perched on, and greedily gazing down into, the tower. Their system is at all events the more perfect solution of the sanitary side of the question, especially in this hot and moist tropical climate. Death is a solemn reminder of the equality of all men before the law of nature, and their mode is an efficient preventive to post-human distinction, vanities and funeral pomp.

CHINA AND THE UNITED STATES*

BY SIR CHENTUNG LIANG-CHENG, K. C. M. G.

ENVOY EXTRAORDINARY AND MINISTER PLENIPOTENTIARY FROM CHINA TO THE UNITED STATES

FROM the earliest intercourse of the United States with China, the relations between our two countries have been of the friendliest character. When the governments of Europe in the past century, singly or in combination, took aggressive action against China, the United States always refrained from acting with them or following their example. But especially since the days when your distinguished citizen, Anson Burlingame, after having represented the government of the United States at the court of Peking, served so ably as the ambassador of the Imperial Chinese government in making a series of treaties with

* An address to the Commercial Club of Chicago, November 11, 1905.

foreign powers, and particularly the treaty of 1868 with your government, we have been drawn more closely together.

The constant policy of your government in regard to the affairs of the Far East has been one of conspicuous magnanimity and justice. This was amply manifested in the settlement of the difficulties of 1900 and throughout the negotiations with the powers in the following year. I recall with unspeakable pleasure the conduct of President McKinley at that time, through whose wisdom and forbearance my country was saved much humiliation. The policy which he marked out was followed by his successor, President Roosevelt, whose fairness and high sense of justice have been always evinced toward us. Nor can I fail to mention the friendship and protecting care of that eminent and lamented statesman, John Hay, Secretary of State. For these reasons the Chinese, as a government, are under a deep sense of gratitude, and, as a people, are naturally most friendly inclined toward the government and people of the United States. Hence it was that I experienced a feeling of no little satisfaction when I was honored with the mission to represent the country of my birth in the country of my education.

The subject about which doubtless you would be glad to hear from me—the commercial possibilities between the two countries—is one respecting which the members of the Commercial Club, with their long experience and keen judgment, are better judges than myself. But I cannot fail to see that, as China is brought more and more closely in contact with foreign countries, as the people come to learn the necessities, the conveniences, and the comforts enjoyed by the people of other lands, as by travel, by education, by long residence abroad, her demand for foreign commodities will be largely increased. China is not, to a great extent, a manufacturing country; nor is she likely to be in the near future. Her people are too easily satisfied with what they can readily purchase in the world's markets. Nor are her people, who have enjoyed art, culture, refinement for centuries, disinclined to modern luxuries and conveniences. The present foreign trade in that ancient empire is chiefly confined to the coast provinces. It is anticipated that the abolition of the likin tax, as provided in the recent commercial treaties, when fully carried out, will forever destroy that formidable barrier to internal commerce so long deplored by merchants, both foreign and native alike. When her immense natural resources shall have been developed, her purchasing power will indeed be greatly increased.

It is this commercial growth I long to see established between the two countries, and it has been my pleasure, as well as my duty, to smooth all differences which might threaten its complete realization. But there is one difference now engaging the serious attention of the two governments which I may be pardoned for bringing to your attention. The exclusion question and the administration of the exclusion laws are matters which seem to have engaged very little the consideration of the American people; but they are matters of vital importance to the Chinese directly concerned. While I wish it to be understood that it is not my intention to unduly criticise the laws or the administration of the laws, the mention of some facts may aid you in a proper consideration of this question, which has a direct connection with the improvement of our commercial relations.

When the American Commissioners went to Peking to negotiate the immigration treaty of 1880, in the first memorandum which they submitted to the Chinese plenipotentiaries in setting forth the object of their visit, they stated that the restriction they desired was "entirely of laborers." An examination of

their detailed negotiations, which were fully reported to their government, will show that they made no other demands. After receiving most sacred assurances that the restriction shall be "reasonable, and not absolute prohibition," the Chinese government gave consent to the American government's demands. This was considered at the time by the American Commissioners, as their official reports show, as a concession from the Chinese government without any *quid pro quo*. The Chinese government had good reason to believe that the question would be handled with due leniency, and that the American people would not take advantage of their good nature.

Fourteen years elapsed, and the American government by resolution of the Senate again sought to negotiate a modification of the treaty with the Chinese government. The treaty of 1894, which expired December last by limitation, containing a provision that no Chinese laborer shall enter the United States, was the result. It should be stated that there is no indication in this resolution that the Senate desired the exclusion of any other class of Chinese than laborers. It is evident that the object of the American government was to secure, and the consent of the Chinese government was given to, the prohibition of Chinese laborers only, and no other class. During more than a score of years of restriction and prohibition, abuses have sprung up on both sides. Time will not permit me to enumerate the numerous cases of hardship and unjust treatment of which the exempt classes of Chinese have been made the victims because of the overzealousness of some United States government officials in discharging their duty in keeping out the prohibited class of Chinese. Suffice it to say that prior to the President's order of last June it had so stirred up the feeling of the Chinese people that the boycott against American goods was the regrettable consequence.

In compliance with the wishes of the American government, the Chinese government has issued an imperial decree, warning the people to respect every treaty stipulation under penalty of severe punishment, and urging them to suppress the boycott pending action of Congress to relieve the situation, and the provincial authorities have issued similar proclamations. The Chinese government, while viewing with concern the exclusion of Chinese laborers under undue discrimination is, nevertheless, not unwilling to take into consideration the condition of things alleged to exist in this country. But aside from the laboring class, all other classes should be admitted, and should receive the same treatment as is accorded to similar classes of Europeans entering this "land of freedom." As the laws and the immigration regulations stand today, aside from the five classes named in the expired treaty of 1894, namely, students, merchants, teachers, travelers, and officials, the following classes of Chinese cannot enter the United States, to wit, bankers, lawyers, journalists, priests and the clergy, physicians, dentists, insurance agents, brokers, and traveling commercial agents. Nothing was farther than this from the thought of the original negotiators.

In fact, the laws on the subject seem to be in such a state of hopeless confusion that different attorneys-general have rendered conflicting opinions as to the meaning of certain vital requirements, with the result that the regulations, which should be intended merely to carry into effect the provisions of the laws, impose conditions additional to the laws and unwarranted requirements, which have the force of legal enactments. In consequence Chinese subjects have been made to suffer great hardship in their attempt to land in the United States, and after being admitted they have been incessantly harassed by immigration agents of the government

with domiciliary visits and unreasonable interruptions while pursuing quietly and peaceably their lawful vocations in this country. True, every nation has the supreme right to make its own laws, but it is liable to be held accountable in some future day for any wrong done thereby to the subjects of foreign governments. Any new settlement of the exclusion question, therefore, in order to satisfy the Chinese government and to be in accord with the dignity and sense of justice of this great American republic, must have regard to the unsatisfactory manner in which the laws and regulations relating to Chinese immigration, made in pursuance of treaty stipulations, have been administered, and should correct the abuses that have gradually sprung up, which render the present state of affairs intolerable.

What China asks is only fair play and due consideration, and she can well rely on the justice of the American people and on the wisdom of their law-makers, headed by their illustrious President, who is the champion of peace, of humanity, of just dealing, to bring this important question to a successful settlement and remove the only serious obstacle to the freer development of our commercial relations.

A lamentable event has recently taken place in the murder of several American missionaries in one of the remote localities of China, to which I think it proper to refer. Repeated imperial edicts have recognized that foreign missionaries are lawfully in China; their beneficent work in instruction, hospitals, and charity has been recognized by my government, and the authorities have been enjoined to afford them all possible protection. The cause of the recent mob violence has not yet been definitely ascertained, but the Foreign Office at Peking has hastened to inform the American minister that prompt punishment will be inflicted upon the murderers and full indemnity made for the injuries and losses sustained by the missionaries.

Unfortunately the Chinese government, though influenced by a sincere desire to repress lawlessness, is not always able to anticipate and prevent mob violence; but China is not the only country which is sometimes put to shame by the acts of excited and bad people. It does not excuse the bloody deeds of which the missionaries are the sufferers to say that more Chinese subjects have been cruelly murdered by mobs in the United States during the last twenty-five years than all the Americans who have been murdered in China by similar riots, but it may in some degree palliate the shocking crimes in China. I cannot, however, refrain from saying that in every instance where Americans have suffered from mobs the authorities have made reparation for the losses, and rarely has the punishment of death failed to be inflicted upon some of the guilty offenders. On the other hand, I am sorry to say that I have not been able to recall a single instance where the penalty of death has been visited on any member of the mobs in the United States guilty of the death of Chinese; and in only two instances of mob violence out of many has indemnity been paid by the authorities for the losses sustained by the Chinese.

I am free to say that the United States government has on many occasions exerted its power and authority to secure punishment of the criminals through the courts, but public opinion in the localities has been so strongly against the Chinese that all the murderers have escaped punishment. Let us hope that a better day is coming for our respective peoples, and that the civilization and humanity of both nations will prevail over barbarism and savagery.

WHAT HAS BEEN ACCOMPLISHED BY THE UNITED STATES TOWARD BUILDING THE PANAMA CANAL*

By Theodore P. Shonts

Chairman of the Isthmian Canal Commission

WHEN I received Vice-President Lupton's invitation to come before your association and talk on the Panama Canal, I accepted it with pleasure because of the opportunity it afforded of talking to business men in a business way of what is a great business project. As I view it, the building of the Panama Canal is a business, not a political, proposition. I propose, in what I have to say to you, to talk as a practical man to practical men who are themselves engaged in large commercial enterprises and who know from experience the difficulties to be met and the enormous amount of thought and labor involved in the inauguration of great undertakings in the United States. You will be able to appreciate, therefore, how every difficulty was aggravated in an enterprise of the magnitude of the Isthmian Canal, in which the preparatory work had to be carried on 2,000 miles from the base of supplies. But this is not all. The work had to be done in a hostile climate and under health conditions which, through centuries of neglect of all sanitary principles, had become a menace to the lives of all persons save natives of the tropics.

In order, therefore, to make the Isthmus a place fit to live in and to work in, there were three fundamental tasks which had to be performed in advance of all others:

First. Thorough sanitation of the Isthmus.

Second. Providing suitable habitations for all classes of employés.

Third. Providing a system of food supply which would afford to all employés opportunity of obtaining wholesome food at reasonable cost.

First. In regard to sanitation: When the United States began this work there were no systems of water works, of sewerage, or of drainage on the Isthmus. The people depended largely on unprotected cisterns for their water supply, filled during the rainy season, and on barrels filled from neighboring streams, all breeding places for mosquitoes. The filth of ages had accumulated around the dwellings and in the streets, undisturbed except when washed away by torrential rains. Pools of stagnant water had existed for years in proximity to dwellings, and insect-breeding swamps lay undrained adjacent to the cities and many of the towns. Seventy per cent of Panama is now supplied with pure mountain water, fed from a storage large enough to furnish sixty gallons per day to each inhabitant after its present population shall have increased one-half. Fifty per cent of a complete modern sewerage system has been installed, and work on the remainder is being carried rapidly forward. The first million of brick for paving its streets are on the ground. The city has been fumigated time and again, first house by house, to stop the spread of disease, and again as a unit—that is, the entire city at one time. A large force is just finishing a thorough cleaning of the city—the first scrubbing it has had during its centuries of existence; and Gov-

*An address to the American Hardware Manufacturers' Association, Washington, D. C., November 9, 1905.

XUM

ernor Magoon, under whose jurisdiction all this work has been so successfully accomplished, is arranging to raze many of the worst shacks and replace them with modern sanitary buildings. Within a year, it may confidently be predicted, Panama will be a city well watered, well sewered, well paved, and clean and healthful.

What has been done for Panama is being done for Colon and every important labor camp across the Isthmus. Work on Colon's water reservoir is well under way, and temporary measures are being employed to safeguard the city's health pending the report of a board appointed to recommend plans for permanent improvements. An abundant supply of pure water from mountain springs has been provided at Culebra and at other important labor centers along the line of the canal, and adequate drainage is being installed in them also.

Four thousand one hundred men are now employed in these sanitary undertakings. So effective has been the work that yellow fever has been virtually extirpated from the Isthmus. In June last there were 62 cases of yellow fever there; in July, 42; in August, 27; in September, 6, and in October, the worst month of the year for yellow fever, 3—no one of the latter among the employés and all originating many miles from the line of the canal. In regard to general health conditions, I was told, when on the Isthmus in October, that there were over a hundred less patients in Ancon Hospital than there had been for many months, although we had brought in 4,000 additional laborers during the previous two months, and it was from the new arrivals that the hospitals were usually recruited.

To fully understand what has been accomplished by our sanitary work, it is only necessary to compare the present rate of sickness with that which prevailed on the Isthmus when the French were in possession. In August, 1882, the second year of the French occupancy, with a force of 1,900 men, the death rate was 112 per 1,000. In August, 1905, with a force of 12,000 men, there were only eight deaths, or two-thirds of a man per 1,000.

If we have not, as our critics complain, made "the dirt fly," we have made the filth fly, and we have made yellow fever, that supreme terror of the tropics, fly so far from the Isthmus that it will never, let us hope, find its way back again.

We have established a hospital system which includes a large hospital at Colon and another at Ancon, and a number of smaller hospitals at convenient points along the line. The one at Colon is built on piers over the Atlantic Ocean, and patients there have at all times the benefit of cool and invigorating sea air. That at Ancon is one of the largest and best equipped in the world, situated on the hill above Panama and commanding a superb view of mountains and sea.

The management and service of the hospitals are on a par with the natural advantages and beauty of location. Colonel Gorgas, who is in direct charge of hospitals, has organized a staff of doctors and nurses for which it would be difficult to find a superior anywhere. Mr Isham Randolph, one of the members of the consulting board of engineers, who recently visited the Isthmus, said, in a letter published on his return: "The hospitals are a source of just pride to our people. If sickness could ever be regarded as a boon, it may be so thought of in Ancon and Colon." No less emphatic testimony comes from Mr D. M. Hazlett, who speaks from personal experience as a patient in Ancon Hospital. Writing in the Panama *Mail*, he says: "The medical staff and corps of trained nurses are beyond criticism. No expense has been spared in providing the various wards with all

the conveniences which science and experience can command. There is probably no institution in the world where patients receive better treatment or more faithful service than in Ancon Hospital."

Second. In regard to providing quarters for the employés: The commission inherited from the French company more than 2,100 buildings, all in bad condition. During the past year 649 of them have been repaired, 58 new buildings have been erected, and 67 more are in course of construction; two new hotels, three stories high and containing from 55 to 60 rooms each, have been completed, and authority has been granted for eight others, a portion of which are under construction at the present time. Work is in progress also on cottages for married employés and on bachelor quarters. In this work of construction 2,400 men are employed, and additional carpenters are being sent out with every steamer. This work is being pressed forward with the utmost vigor.

Third. In regard to food supplies: This was the most serious problem that confronted us. If we couldn't feed the men, we couldn't build the canal. Owing to the fact that the natives never look beyond their present necessities, no surplus food supply ever accumulates. This normal condition of no surplus was greatly intensified by the almost total failure of the crops for the two preceding years, by the abandonment by agricultural laborers of their farms back in the hills for work on the canal, where they received higher pay for shorter hours, and by quarantine against the port of Panama on account of bubonic plague, which prevented the arrival of foodstuff from neighboring provinces.

We were thus brought face to face with the problem of feeding twelve thousand (12,000) men, with base of supplies 2,000 miles away.

We immediately arranged to open local commissary stores at every important labor camp, to provide messhouses, and to furnish food, both cooked and uncooked, to all employés at cost. We cabled orders to have our steamers equipped with refrigerating plants; we arranged for the erection of a temporary cold-storage plant at Colon, and we purchased refrigerator cars for immediate shipment to the Isthmus, thus establishing a line of refrigeration from the markets of the United States to the commissary stations of the Isthmus. We also purchased from individual lessees the equipment in existing hotels and assumed their management ourselves. The net result of these efforts is that today we are affording to all employés opportunity to obtain an abundant supply of wholesome food, cooked and uncooked, at reasonable prices. The silver men—by which I mean the common laborers—are being fed for 30 cents per day, and the gold employés—by which I mean those of the higher class—at 90 cents per day, and it is good food in place of bad. There may be dispute about the blessing of tainted money, but there can be none about the curse of tainted food.

But in addition to these fundamental tasks of improving the health conditions on the Isthmus and providing for the physical comfort and well being of all classes of employés, another essential preliminary to actual canal building has been receiving our earnest attention. I refer to the enlargement and improvement of our facilities for receiving and distributing the immense quantities of materials and supplies which will enter into the construction of the canal, as well as into the work referred to. The only really valuable instrument essential to canal building acquired by our government in its purchase from the French was the Panama Railroad. But this instrument, like all the others whose wrecks cover the Isthmus, had been neglected and its equipment allowed to be-

XUM

come obsolete. If the docks, wharves, warehouses, terminal yards, locomotives, and cars of the Panama Railroad had been in good repair, which they were not, they still would have been entirely inadequate to properly care for and handle the small commercial business the road was transacting. The existing facilities, poor as they were, were rendered less efficient by the entire absence of any mechanical appliances on the docks to assist in receiving or discharging the steamers' cargoes. The negro laborer was the only power employed; he was at once the only hoisting machine and the only traveling crane in use. Imagine, then, the congestion which necessarily ensued when the accumulated orders in the states began to arrive in large quantities on both sides of the Isthmus. To aggravate the situation, while the deluge of arriving material was at its height, the commercial business of the road increased nearly 50 per cent over the year before; and at the moment when we thought affairs could get no worse, two cases of bubonic plague at La Boca resulted in two consecutive quarantines at that place, completely tying up that outlet for 60 days. Furthermore, the personnel of the Panama Railroad as acquired had not been educated on modern lines, and therefore was completely paralyzed when confronted with the onerous conditions caused by this congestion. It was necessary, consequently, to begin at once the construction of new wharves equipped with modern mechanical appliances, and of large terminal yards at both ends of the road; of extensive warehouses; of suitable machine shops, and of a modern coal hoisting plant, which will reduce the cost of handling coal from ship to engines from $1.30 to about 12 cents per ton.

We have also purchased new and more powerful locomotives, larger cars for both passenger and freight services, and heavy steel rails for relaying the road, and have strengthened the bridges to enable them to carry the heavier equipment. We have reorganized the personnel of the road, putting into the higher positions experienced, aggressive, up-to-date men, with the result that with the old equipment and facilities they have cleared up during the last thirty days an accumulation of over 12,000 tons of commercial freight. With the advent of our increased dock facilities, terminal yards now nearly complete, and new power and equipment now arriving, the road will be in a position to handle efficiently and economically a vastly larger volume of business than heretofore.

While all this necessary work was in progress the task of purchasing, forwarding, and distributing the enormous quantity of materials and supplies of all kinds was receiving our constant and most careful attention. The purchases included not only the items entering into the permanent plant, but also those required for the preliminary work. To give you an idea of the magnitude of these purchases I will read for you the principal items:

61 steam shovels.
1,300 flat cars.
12 rapid unloaders.
22 unloading plows.
13 earth-spreaders.
324 dump-cars.
12 hoisting engines.
120 locomotives.
5,000 tons of steel rails.
125,000 cross-ties.
12,000 pieces of piling.
14 air compressing machines.
3 cranes.
152 rock-drills.
30,000,000 feet of lumber (approximately).
2 dipper dredges.
646,000 pounds blasting powder.
617,500 pounds dynamite.
7,000,000 paving brick.
3,500,000 building brick.

500,000 square feet roofing tile.
36,000 barrels cement (approximately).
3 steel water tanks and towers.
12 stand pipes.
2 ocean steamships.

The approximate total cost of our purchases was about $9,000,000. It should be borne in mind that at the time when orders for most of these items were placed the industries of the United States were crowded with domestic business and were unable, consequently, to make prompt deliveries. It should be borne in mind, also, that after machinery had been manufactured here and set up, it had to be taken apart, shipped two thousand miles over steamship lines already taxed to their full capacity, and on arrival on the Isthmus had to be again set up before ready for use. Then, too, on account of many reports as to the prevalence of yellow fever on the Isthmus, it was very difficult at a critical time for concerns furnishing material to get steamers to take it there, because of fear that their crews might become infected and their vessels might be quarantined when they wished to return to the United States. Finally, the steamers of the United Fruit Line from New Orleans, which had been carrying a considerable amount of the freight going to the Isthmus, were put out of service on account of yellow fever in that city.

To the various causes of delay mentioned is to be added the requirements of law, that all bids for materials used in government work shall be advertised for. This compels a delay in all cases of from ten to thirty days.

Furthermore, in addition to the purchases for the canal, the following have been ordered for the Panama Railroad:

500 box cars—40-ton.
12 caboose cars.
10 refrigerator cars.
6 passenger coaches.
24 locomotives.
2 wrecking cranes.
1 locomotive crane.
1 pile-driver.
3 track scales—100-ton.
1 modern coal-hoisting plant.
1 cantilever crane for coal-hoisting plant.

In regard to all equipment purchases, both for the canal and the railroad, it should be stated that the gauge of the Panama Railroad, being wider than the standard gauge in the United States, made it impossible to use second-hand rolling stock of any kind; all locomotives and cars had, therefore, to be built to order. After the supplies reached the Isthmus we had to contend not only with the lack of terminal facilities and mechanical appliances already mentioned, but also with an inadequate equipment with which to distribute it to its destination or the force to handle it. These obstacles have been largely surmounted. The elimination of yellow fever and the establishment of better systems of housing and feeding the employés have enabled us to recruit our working forces till those assigned to the material and supply division now number over 2,100 men.

I have so far, gentlemen, endeavored to give you an idea of the difficulties which we have had to encounter and overcome in order to make the Isthmus a place fit to work in and to collect the tools with which to work. So far as actual excavation and dredging are concerned, we have not endeavored to accomplish much. As a general principle, in which I think you will all concur, it is inadvisable to attempt to run a railroad before the tracks are laid. We are now working, however, six steam shovels in Culebra Cut, which is the largest single factor in the construction of the canal, and have removed approximately 1,000,000 cubic yards of material. By this work we are accomplishing two things: First, we are putting the levels of the cut in proper condition for the installation of the largest number of machines which can be effectively operated, and,

second, we are gathering data which will be useful in future estimates of the cost of canal construction. In the Culebra work 2,600 men are now employed. We are also building railway tracks and yards, and are dredging at both ends of the canal, so far as advisable, until the question of type of canal is decided. This should be determined within the next ninety days. It should be understood that all the work we have done is applicable to any type of canal.

The question of labor is a grave and perplexing one. We have advanced far enough to know that we can secure a sufficient supply of labor from the tropics, so far as numbers are concerned. The question of quality is a very different matter. Unless a much greater efficiency can be developed than is secured at present, we shall have to look elsewhere. Probably I can best convey to you a just estimate of the quality of this labor by relating an incident which came under the observation of Senator Millard during his visit on the Isthmus. Sitting on the deck of the steamer *Havana*, he was watching the unloading of a heavy piece of machinery from the hold of the vessel. The tackle got caught in the rigging on the deck above; the foreman in charge of the gang of laborers sent one of them above to free the tackle. The laborer went to the place to which he was sent and did what he was told to do. The foreman, paying no attention to him after he started on his errand, missed him a few minutes later, and looking around for him, discovered him sitting peacefully at the spot to which he had been sent. "What are you doing there?" yelled the foreman. "You told me to come here, sah." "Well, why didn't you come back?" "You didn't tell me to, sah."

It is to this class of labor that we are paying from 80 cents to $1.04 per day in gold, and out of which it is estimated we do not get more than 25 per cent of the efficiency of labor in the United States. This is the kind of labor to which we are compelled to apply the eight-hour law—that is, to aliens, who know nothing of the law's existence until they arrive on the Isthmus. Such application will increase the labor cost of canal construction at least 25 per cent and will add many millions unnecessarily to the total expenditure. *In my opinion, it is a mistake to handicap the construction of the Panama Canal by any laws save those of police and sanitation.* I want to go on record here that the application of the eight-hour law, of the contract-labor law, of the Chinese exclusion act, or of any other law passed or to be passed by Congress for the benefit of American labor at home, to labor on the Isthmus, is a serious error. Over 80 per cent of the employés of the canal will be aliens. A majority of the other 20 per cent employed will be in a clerical or supervisory capacity. The application of these laws on the Isthmus will benefit a very small number of American laborers, but will enormously add to the cost of construction, and American labor at home will have to pay its share of the consequent increase in taxation. As business men, you will understand the force of this statement.

That is the story, gentlemen, of what we have been doing on the Isthmus. In line with this, let me add that Chief Engineer Stevens, a man well equipped for the great task he has undertaken, is preparing three complete sets of plans applicable to as many types of canal, so that when a decision shall have been reached as to what type will be used, no delay in beginning work will ensue. It is our confident belief that by the 1st of July next the plant as purchased will be installed and working to its fullest practical capacity. In other words, by that time the dirt will begin to fly in earnest.

The canal will be built—rest assured of that—and it will be built at Panama. Those two phases of the problem have

passed irrevocably from the field of debate. There is an industrious and voluble band of hired Ananiases moving to and fro in the land whose mission it is to deny this. The burden of their song is: "The canal will never be built at Panama, and everybody connected with the enterprise, including the President and commissioners and engineers, is convinced of it." You can hear the members of this band chanting their song, to the accompaniment of their lyres, singly and in chorus, wherever men congregate and wherever a few reporters are gathered together. They are rehearsing for their grand burst of noise when Congress shall have assembled. When they are not rehearsing they are putting the words of their song into bogus interviews and other written forms of newspaper publication, which they are sending forth by thousands from their bureaus of publicity in this and other cities. As one contemplates the output of this singular industry, this factory of fiction, he is moved to say of its guiding spirit as Shakespeare says of Captain Dumain: "He will lie with such volubility, sir, that you would think truth were a fool."

Who is capitalizing this industry? What is the bountiful source of this spouting spring of mendacity? Is it to be found among the friends of an Isthmian canal? Are these supplying funds for the sustenance of such a campaign of misinformation? What interests, except those foolishly dreading the competition of an Isthmian Canal, would put up money to delay and possibly defeat its construction? That there are interests of that kind is not a matter of suspicion or speculation, but of history.

They have been fighting a canal for more than half a century, and they fought it successfully till Theodore Roosevelt, armed with his "big stick," appeared as its champion. From that moment their efforts have been powerless, but they have not yet discovered the fact. They are wasting their energies and their cash, for behind Theodore Roosevelt stand the American people in solid mass and with determined front, shouting as one man: "Give us a canal that will be adequate to meet the demands of the commerce of the world, and give it to us at the earliest possible moment." That, gentlemen, is the command which the Commission, under the inspiring lead of the President, is obeying to the letter. We are building the "Roosevelt Canal."

RUSSIA IN RECENT LITERATURE*

By General A. W. Greely

Chief Signal Officer U. S. A.

At no time in the history of the world have the present conditions and future fortunes of Russia excited more interest and been of greater importance than today. It is therefore thought that the members of the National Geographic Society will deem timely the presentation of the various phases and aspects of Russian life as depicted in two very interesting vol-

*Russia. By Sir Donald Mackenzie Wallace. Ill., maps, pp. xx + 672. 9½ x 6¼ inches. New and much enlarged edition. Henry Holt and Company, New York, 1905. $5.00 net.

Russia under the Great Shadow. By Luigi Villari. Ill., 330 pp. James Pott & Co. $3.50 net.

umes of Sir Donald Mackenzie Wallace and of Luigi Villari, the latter being an original work.

Wallace's "Russia" is an enlarged edition of a work which, though it originally appeared thirty years since, is yet recognized as a standard authority upon the land of the Czars. Sir Donald's observations of Russia now cover a period of thirty-five years.

The changes in Wallace's book are very few, indicating slight modifications as to discomforts of travel, scarcity of good roads, absence of domestic comforts, and, above all, the continued low state of the clergy.

While stating that the younger priests have aspirations for the future improvement of the people, he speaks of the system as "presenting continual simony, carelessness in religious rites, and disorders in administering the sacrament, thus transforming the service of God into a profitable trade."

Of the original volume the only material changes have been in the treatment of local self-government, but the value of the volume is largely increased by additional chapters on industrial progress, nihilism, socialism, and other revolutionary movements.

With regard to the zemstvo, now of forty years standing, he expresses the opinion that it is destined "to play a great political part in the future." This system of local government has suffered from restrictions on the development of education, through governors' suspending its action, by increasing the representation of the bureaucracy at the expense of the peasantry, from preventive censure as to its publications, and by opposition to its efforts to establish equitable taxation. The zemstvos in late years have improved local conditions materially as to hospitals and asylums, and less so as to primary education, agriculture, roads, and bridges. With its defects, the zemstvo is "infinitely better than the institutions it displaced."

The growth of nihilism and its reaction are carefully treated. Repressive measures failed to check it, the decline being due to the foundation of a liberal party. Nihilism found its warmest partisans among students, whose beautiful theories lacked the power of even suggesting concrete forms. The transformation of nihilism into socialism is attributed to Tolstoi's educational reform, which brought the revolutionists into closer contact with western socialism. The various phases of propaganda, agitation, energetic repression, and of terrorism, with its associated crimes, culminated in the assassination of Alexander II, which discredited terrorism.

The development of manufactures and the creation of a proletariat materially affected the revolutionary movement, which assumed the form of social democracy. Political agitations and trade unions resulted in labor troubles, but the efforts of the government, through legislation and its support of workingmen in labor disputes, failed to control the situation. Father Gapon's connection with labor unions and his subsequent career are discussed, together with his failure as a self-appointed representative of the oppressed people and the leader of a political revolution.

Sir Donald admits his inability to state whether the outcome will be reform or revolution. He outlines Plehve's repressive policy, the demands of the constitutionalists, the aims of the social democrats and agrarians. The liberals counsel peaceful methods, while the revolutionists resort to popular disorders.

Considering a strong man necessary, he says of Witte: "As an administrator he has displayed immense ability and energy, but it does not follow that he is a statesman capable of piloting the ship into calm waters."

The most interesting, if not most important, chapter is on industrial progress and the proletariat. A protective tariff and government support have wonderfully developed manufacturing indus-

tries, which, in order of importance, are textile fabrics, articles of nutrition, and ores or metals. In total production Russia ranked fifth among the nations. This tremendous growth has been through M. Witte, who declares agricultural countries economically and intellectually inferior to nations manufacturing commodities. Competition and overproduction led to failures and a commercial crisis, from which Russia was slowly recovering at the commencement of its war with Japan.

With manufacturing industries the urban populations increased, notably of Lodz and Moscow, the latter reaching a million. Big factories with cheaper methods of manufacture are killing rapidly home industries. Whole groups of "industrial villages have fallen under the power of middlemen, who advance money to the working households and fix the price of the products."

There are brief allusions to the industrial workers, especially in connection with their unfortunate material conditions. While the workmen complain of long hours, low wages, arbitrary fines, and brutal severity, yet there are other important evils emphasized—those associated with the barrack system, the company store, and unsanitary surroundings.

As a contrast and supplement to the English view of Russia represented in MacKenzie's volume, is that of "Russia under the Great Shadow," by an Italian, Luigi Villari. His services as correspondent of the London *Times* afforded unusual opportunities for acquiring an excellent knowledge of European Russia. This exceedingly well-illustrated volume, with interesting and often brilliant descriptions, covers the salient points of modern Russia and supplements them by broad generalizations of evident value. Of Russia he says:

"An immense country, rich in natural resources, inhabited by a people who, if primitive and ignorant, have many very fine qualities, strong, capable of the hardest toil, inured to the struggle with nature, brave, intelligent, and religious, has been kept out of the march of progress in a condition of semi-Asiatic barbarism for the sake of impossible schemes of universal dominion."

Of especial interest for the light reader are the chapters on St Petersburg, Moscow, Nijni Novgorod, and the Crimea. To the student or more serious reader may be commended provincial Russia, the industrial development, the working classes, Poland, and the economic situation.

He characterizes St Petersburg as representing "the foreign element of Russian civilization." Its picturesque Alexander's market, or Thieves' bazar, is happily described.

Moscow, he says, sums up the essence of many distinct civilizations. It still remains a living force, while presenting every aspect of Russian life, every phase of Russian history. As a holy city second only to Kiev, it has innumerable miracle-working images, which are regarded with the deepest veneration. The Iberian Virgin, where the Czar invariably pays his devotions, is noted for its great popularity, which is utilized as a valued source of income to the church. Per contra is the Moscow University a plague spot of liberalism, vexatious to the government and not favorable to advanced instruction, owing to censorship and frequent closing by the government. On this point Villari says Russia is especially cursed with an intellectual proletariat, with indigent students, insufficiently clothed and depending on benevolent societies and scholarships. He adds:

"These students and graduates overflow the offices and liberal professions and become the most active agents of revolutionary propaganda. One finds, indeed, glaring contrasts among the Russian educated classes between advanced and daring ideas and complete

ignorance of matters which are common knowledge to the rest of Europe. Side by side with the most revolutionary doctrines that would shock the most advanced of English or French radicals, there are students, like one whom I met last autumn, who simply refuse to believe that such a thing as religious freedom exists in any country in the world. These incongruities are but the result of the system of repression of ideas which, while it succeeds admirably in destroying all independent thought among the stupid masses, drives others to the wildest extremes of revolutionary ideas in politics, literature, and philosophy."

Nijni, the site of the renowned fair, is in its decadence, although still most picturesque. Its description is worthy of perusal. It is tersely described "as a piece of mediæval Europe and unchanging Asia, with an infusion of modernity, it is unequaled even in this land of glaring contrasts."

Provincial Russia, from Moscow southward to the Crimea, is briefly treated. The great cities are lamentable spectacles, through their absence of local patriotism, local information (many large towns have no local newspaper), and owing to the corruption and brutality of local officials. The situation is perhaps best conveyed by the statement that censorship forbids the papers of a large provincial town to publish "descriptions of love scenes, criticisms on reactionary journals, the mention of trade unions, criticisms of the acts of police officials, the mention of the name of Gorky, accounts of the religion of the Japanese, praises of Tolstoi, the word 'bureaucracy,' the names of certain diseases, the enumeration of elementary schools, facts concerning the bad organization of the local hospital and the barracks, criticisms of the articles by Krushevan (the instigator of the Kishinieff massacres)."

In the Black Sea country, one of the most fertile regions of the world, with its grain, wine, iron, coal and oil, Odessa is perhaps the most remarkable port, with a population of nearly half a million. The Jewish question is treated in the description of Odessa, where the streets, promenades, and buildings are superior, owing to the large Hebrew element, about one-third of the population, which controls chiefly the business. Of the Jews, Villari says:

"The great majority are extremely poor, and engaged in various handicrafts and small trades. One of their chief grievances lies in the obstacles placed in the way of the education of their children" (limited to one-tenth the whole number of pupils).

This rule means selection and competition, which bring forward the ablest Jewish students, who "are not infrequently elected by their fellow-students as presidents of the literary and scientific societies. . . . They generally come out with the highest honors, and those who do not go into business become lawyers or doctors, the only liberal professions open to them, and rapidly acquire the best practice. The result . . . accentuates the bitterness against them on the part of the Christians."

Their unpopularity is due to many causes, principally economic. Speculation in grain, most widespread, brings them in bad standing with the peasants, who hate the Jews, but trade with them, as they often mistrust more the Christian merchants.

He adds: "In spite of their many undesirable qualities, the Russian Jews are absolutely indispensable to the welfare of the country. Without them there would be no trade, in many districts money would not circulate, and economic activity would be paralyzed."

The industrial development of Russia, stimulated by the government, has been astonishing in the past twenty years, especially in textiles and metallurgy. These industries are divided by Villari

into zones: Moscow covers particularly textiles, sugar, and beer; in the Baltic iron, textiles, and ship building flourish; Poland produces textiles and tanned goods; in southern Russia the coal and iron industries are predominant; the Ural zone is given over to minerals, without coal; Baku is well known the world over for its oil productions.

These industries had a tremendous development, but overproduction and wild speculation induced equally startling collapses and bankruptcies.

Foreign employers "all have a high opinion of the skill and working powers of the *mújik* (peasant), although in other respects—sobriety, morality, education, and honesty—they regard him as far inferior to the artisan of western Europe."

Of the workmen Villari says:

"They are underpaid, ill-fed, worse housed, and are not cheap. The peasant has great industrial possibilities, is docile, quick to learn, but is without initiative, careless, and needs constant supervision."

The artisan, however, "has a new feeling of human personality and dignity," is inspired with new ideas and driven to new movements.

Confirming Wallace's opinion, Villari states that the Eastern Church is an inert body, almost devoid of vitality. It contributes little to the moral and intellectual progress of the people, but merely keeps them enslaved and ignorant. The average priest, his one thought money exaction, is grasping, avaricious, and callous to the moral condition of his flock. While the average Russian is devoted to his faith and most carefully observes its practices, yet "the liberal movement will render the absolute domination of the church a thing of the past."

The elevation of the people is declared essential, as "until the conditions of the *mujik* are radically altered and improved, Russia can never hope to be really peaceful or prosperous."

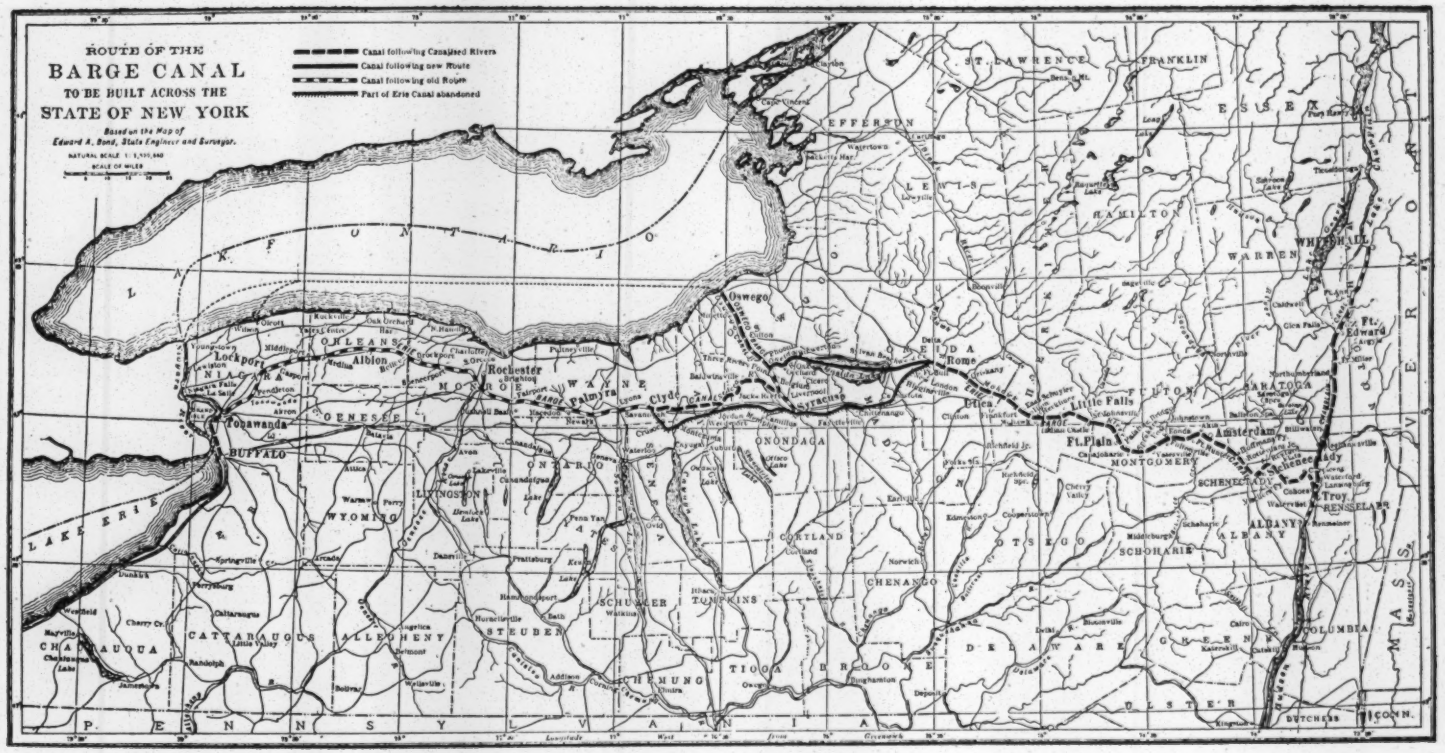
Altogether, the volumes of Wallace and Villari are not only of current interest and value, but will continue so until the methods of Russian administration are materially improved and the rights of man are more generally recognized and respected.

THE NEW ERIE CANAL

THE new Erie Canal, to which New York is committed and which will cost more than $100,000,000, is by far the greatest work ever undertaken by any state. The canal is overshadowed in the public mind by the Panama Canal on account of the international character and the interesting complications that have attended the inauguration of that work by the United States, but in commercial importance the Erie is in many ways the equal of the Panama Canal. The canal is described in the report of the Smithsonian Institution for 1904, just published, by Col. Thomas W. Symons, U. S. A., who was so largely instrumental in preparing the plans. On the Panama it is hoped some time to reach a tonnage of 10,000,000; on the Erie all works, structures, water supply, etc., are predicted on a tonnage of 10,000,000, and provisions are made for accommodating at slight additional expense a tonnage greatly in excess of this. On the upper Great Lakes there is a water-borne commerce of very nearly 90,000,000 tons per year. The Erie Canal will furnish the cheapest route for connecting this vast lake commerce with the seaboard, and its wide-reaching influence can hardly be conceived or appreciated except by those who have given years of study to the problem.

In magnitude the work that New York has undertaken exceeds the work at Panama. More earth and rock must be excavated, more masonry used, and

XUM



Map showing Route of New Erie Canal

more dams built. The cost per unit is not nearly so high as at Panama, because the work will be done in the temperate zone, where labor, tools, and materials are abundant and reasonably cheap.

The canal will be located, wherever possible, in streams and lakes, and it will have no towpath. This will reduce the cost of maintenance enormously, for the cost of keeping the towpath in order is the heaviest item of expense of the present canal.

The existing canals may be called "hillside" canals, as they go through the open country and along the upper portions of the valleys above the rivers, from which they religiously keep away to the greatest extent possible. The new and greater canal is put in the valley bottoms and in the water courses and lakes wherever practicable. It is interesting to note that the new canal is to follow the water route across the state of New York used by the pioneer settlers of the western portion of the state a century ago.

ANNUAL DINNER OF THE NATIONAL GEOGRAPHIC SOCIETY

THE annual dinner of the National Geographic Society will be held at the New Willard Hotel in Washington, D. C., on December 20. The Secretary of War, Hon. William H. Taft, and Mrs. Taft will be the guests of honor of the Society, and there will be a number of other invited guests, including Messrs W. S. Champ, Anthony Fiala, and W. J. Peters, of the Ziegler North Polar Expedition. The dinner will begin at 7 p. m., and at its close several brief toasts will be given. The president of the National Geographic Society, Dr Willis L. Moore, will preside.

It is hoped that many of the members of the National Geographic Society who live not far from the national capital may be able to attend the dinner. The Society, with 1905, completes its eighteenth year. It has now a handsome home and a substantial membership of 10,000 persons, and is in fact the largest geographical organization in the world.

On another page is pasted a blank form which members who can attend the dinner are requested to fill out and mail to the Society. Members may invite their friends to attend as their personal guests. The price per plate is $5 for members or their guests.

AUSTRALIA'S FUTURE

IN his budget speech in the Federal House of Representatives the other day, Sir John Forrest, Minister of Finance, took a very hopeful view of the future of the Australian commonwealth, in spite of the fact that the total government revenue of $57,300,000 was $545,000 below the estimate.

Sir John pointed out that though the population was only 5,000,000, Australia had since 1852 raised gold and other minerals to the value of $3,055,000,000, an average of nearly $59,000,000 yearly. In the single year 1904 the gold yield was $80,000,000, and that of other minerals was $40,000,000. Acres under cultivation numbered 12,000,000, with exports of wheat $26,250,000, of butter $12,500,000, and of wool $85,000,000. The foreign commerce for the year was $472,500,000, of which 74 per cent was with Great Britain and British possessions. The ordinary banks held $480,000,000 deposits, $107,500,000 of coin and bullion, with $175,000,000 also on deposit in the savings banks. The shipping tonnage which entered Australian harbors during the year totaled 29,000,000 tons (Sir John did not mention American ships). Most of these figures are record-breakers. The external trade exceeds that of Denmark, Norway, Sweden, Switzerland, Spain, Portugal, or Japan individually.

The production from primary industries, including manufactures, exceeds $600,000,000 a year.

The $545,000 loss in revenue was more than covered by the $900,000 shrinkage in customs and excises. Evidently Australia, like Canada, is losing by her tariff preferential in favor of Great Britain.

The total expense to Australia of federation for the year was $1,485,000, or 34 cents per capita of the population. That is just for running the federation machine.

The minister advises the taking over by the federal government of all the state debts, aggregating the enormous (for so few people) sum of $1,170,000,000, or $275,000,000 more than the United States interest-bearing debt. At first sight that looks like a big burden for the federal government to assume, but with the taking over of the debts the federal government would not have to continue the present unwieldy plan of returning the revenues over and above expenses to the various states. The sum of $35,705,000 was so returned last year. Further, any federal government, to be able to do its best for its constituents, should have entire control of the national finances. Moreover, a strong centralized government can borrow money at cheaper rates than can individual states. Recent chronicles in the English papers show how much easier it was for Japan and other centralized governments to borrow money in London and Europe than those Australian states which were seeking loans. Neither of those states has enough people, nor is the sparse population sufficiently evenly divided, to enable them to stand alone. That is the main reason why the total debts of the various states, $1,485,000,000, is $297 per capita of the total population.

It would seem as if what the commonwealth of Australia needs is less states' rights, less labor and other class government, less politics for men and more for country, more centralization in and wider powers to the federal government, before she can draw what is her greatest need—more people. Just as in the United States, get the people there, and all else follows—money for developing dormant resources, money for building up manufactures, money for railways, steam and electric, and money for building operations. When the people are there they must be fed, clothed, and housed. That means work, and it is by work, and work alone, that nations are built up into prosperity.

WALTER J. BALLARD.

THE WORLD'S PRODUCTION OF GOLD*

IT is not alone to the raisers of grain that nature has been bountiful of late. The mines of the world have been yielding treasure as lavishly as have our fields. In every day of this year, 1905, work days and feast days, holidays and Sundays, there will be drawn from the ground a million dollars of new gold. And then, when the total is finally cast up, there will be a number of odd millions to spare above that average. The mines of the world will produce this year $375,000,000 of gold. The final figures for the production of gold in 1904 have recently been made, and they footed $347,000,000. We may reasonably look forward in the near future to an annual average output of $400,000,000 of new gold for at least a considerable number of years.

When we remember that in 1885 the production of gold was but $115,000,000 we begin to get a comprehensive view of the significance of this increase. When we remember further that the entire monetary stock of gold in the world is about $5,700,000,000, we can calculate that the output from the mines in the next fourteen years promises to equal a total as great as the present monetary stock of gold. These figures are start-

*From an address to the American Bankers' Convention, by F. A. Vanderlip, October 11, 1905.

ling. They perhaps suggest the possibility of a disturbance of values. It does not follow, of course, that with the production of $400,000,000 of gold per annum the monetary stocks will be increased by that amount. The uses of gold in the domestic arts draw off at least $75,000,000 a year, but that will leave over $300,000,000 a year to add to the gold reserves.

While there will undoubtedly be a tendency to advance prices as a result of this influx of gold into the bank reserves of the world, I do not believe the gold production is likely to become a serious menace. I do not believe that it will so disturb those business relations that are based upon the terms of money as to cause any vital derangement of affairs.

What I do believe is that there is likely to follow just what followed in the two former periods of the world's history when there was an extraordinary production of gold added to the monetary stocks. One of these periods followed the discovery of America, when the treasures of Mexico and Peru were exploited. The other was in the years following the discovery of gold in California and Australia. In each case a mighty impulse was given to the exploitation of virgin fields of development.

It seems to me not improbable that the next few years will witness the expansion of the field of commercial enterprise into new places. Countries that are commercially and industriously backward will yield to this new influence. It seems to me that one of the direct and important effects of this great production of gold will be to give an impulse to the development and industrial exploitation of South America, Africa, Asia, and eastern Europe. At our own hand is South America on one side and China and Japan on the other. We are rapidly awakening to the commercial possibilities within these countries.

CHINA IS NOT OVERPOPULATED

OUR minister to Peking, Mr W. W. Rockhill, shares the view of Admiral C. E. Clark, published in this Magazine in June, 1905 (page 306), that the population of China is greatly exaggerated. The last official estimate, that of 1885, which was made by the Chinese board of revenue, gave 377,636,198 as the population of the Empire. Mr Rockhill believes that the population does not exceed 275,000,000 at the present time, and that probably it falls considerably below this figure.* He vouches for the fact that none of the northern provinces are overpopulated, and he is inclined to think that China could support a much larger population than it now has, which would be impossible if the number had reached the enormous figure given by some imaginative writers.

An Observer in the Philippines, or Life in Our New Possessions By John Bancroft Devins. Illustrated. Pp. 416. Boston, New York, Chicago: American Tract Society, 1905.

The Philippine Islands. By Fred. W. Atkinson. Illustrated. 8vo, pp. 426. Boston: Ginn & Co., 1905.

Our Philippine Problem. By Henry Parker Willis. 8vo, pp. 478. New York: Henry Holt & Co., 1905.

There has been a vast deal written about the Philippine Islands in the past five years, much of which is wrong and some of which is false. Contradictory statements abound, and the plain reader is at his wits end to know what to accept and what to reject. Dr Devins, the editor of the New York *Observer*, spent two months in the Archipelago. It was long enough to learn the situation, but by no means long enough to understand it. The book is largely narrative, describing with interesting detail life on an army transport, on which the

* Report of Secretary of Smithsonian Institution for 1904, page 675.

author crossed the Pacific, and several trips made about the Archipelago. The characteristics of the people, their industries, institutions, health, etc., are touched upon. Naturally, much space is devoted to matters of religion, and the Protestant missionary work receives great attention. The author is optimistic, and has written a very readable book.

Quite different is the character of Dr Atkinson's book from that of Dr Devins. Dr Atkinson was the first superintendent of schools of the Archipelago under the American civil government, and the present admirable school system is mainly his work. He was in the Archipelago nearly two and a half years; his work took him everywhere and among all classes of people, so that he has written from a full knowledge of his subject, with authority and generally with accuracy.

His introduction is a most admirable summary of the character of the people and the necessities of the situation—the several chapters treat of topography, history, climate, health, industries, and commerce, the city of Manila, the people, their superstitions and religion, government and education. He is not clear or definite in his account of temperature at Manila (pp. 125 and 126), so that the reader may easily be confused. On pages 174 and 175 he contrasts the yield of sugar in the Philippines with that in Hawaii as follows: "A (Hawaiian) planter usually obtains 75 tons of sugar to the acre, whereas in the Philippines he (the Filipino) considers half a ton a fair amount." If he would substitute 4 for 75, and 1 for ½, the contrast would be correct and would still be sufficiently startling. There are numerous other slight errors scattered through the book which leads one to regret that the author had not awaited the appearance of the Census report and thus have avoided the slight blemishes on what is otherwise a most valuable work.

Mr Willis' book is of a still different class. The author, a professor in Washington and Lee University, devoted several months of 1904 to a study of the conditions of the Philippines. The book, like many others, is a discussion of the government and the political, social, and economic conditions of the islands.

It is not easy to take the writer seriously. He says we are in the Philippines to exploit them; that the people are antagonistic to us; that the existence of ladronism shows that the insurrection is still going on; that the press is muzzled and that speakers are not allowed to speak; that the natives prefer church schools to public schools; that the teaching of English is a mistake and that the teaching should be in the Malay tongues; that the Philippine civil service is a farce; that the native constabulary is rotten, and that the Philippine Commission favors the regular Catholics rather than the Aglipayans. Not one of these statements, it is unnecessary to say, is correct. Mr Willis was probably filled with tales of woe by some American trader who had been disappointed in his hopes of great profits by the withdrawal of the army. There are many such in the Philippines.

H. G.

Michigan. By Thomas McIntyre Cooley. With map. Pp. 410. 5 x 7½ inches. Boston: Houghton, Mifflin & Co. 1905. $1.10 net.

This is one of the best of the "American Commonwealth" series, published by Messrs Houghton, Mifflin & Co. The author realizes, what some historians are apt to forget, the important influence of the natural resources of a state. In his history he gives not merely a record of Michigan's governors and legislatures and their acts, but he describes the development of the material wealth and prosperity of the state. The census of 1900 shows Michigan ninth among the states in population, in

amount of capital employed in manufactures, and in the production of flour; second in lumber, copper, and iron ore; sixth in the manufacture of agricultural implements and chemicals, and seventh in railway cars; eighth in the production of cheese and of wood-pulp and paper; tenth in manufactures generally, and thirteenth in agriculture.

Two Bird Lovers in Mexico. By C. William Beebe. With 100 pictures from photographs by the author. Pp. 408. 6 by 8½ inches. Boston: Houghton, Mifflin & Co. 1905.

An entertaining description of nature life in Mexico. The author writes well and his account of things Mexican is novel and well worth the reading.

"As we rambled through the trenches we sometimes brushed against a mass of large golden globes, strung close together along the leafless twigs of the plant—brittle and five-sided and as light as air. They reminded one in shape somewhat of the sea-jellies (*Beroë*) which drift in the currents of the ocean. And the simile is not confined to the exterior, for within hangs a small round sac containing the tiny flat brown seeds, just as, in certain of the animal jellyfishes, the pendulous stomach is swung. Out of curiosity I counted the seeds in one of these seed-vessels and found 253. A single branch which I brought home with 79 globes would therefore scatter some 18,000 fruit. The least touch or breath of air sets each of these many seeds vibrating within their hollow spheres, producing a sweet, sifting tinkle, comparable to nothing I have ever heard in nature."

Arizona Sketches. By Joseph A. Munk. With 100 illustrations. Pp. 230. 6 x 9½ inches. New York: The Grafton Press. 1905.

Dr Munk has given a very readable account of the territory of Arizona, which has been aptly dubbed "the scientist's paradise," for it possesses grand scenery, a salubrious climate, productive soil, rich mineral deposits, rare archæological remains, and a diversified fauna and flora. Some of the chapter headings are A Romantic Land, The Open Range, Ranch Life, The Round-up, A Model Ranch, Some Desert Plants, Hooker's Hot Springs, Cañon Echoes, The Meteorite Mountain, The Cliff Dwellers, The Moqui Indians, A Fine Climate. The illustrations are particularly good.

Cram's Atlas of the Dominion of Canada and of the World. Edited by Dr Eugene Murray - Aaron, 14 x 18½ inches. Chicago: George F. Cram; Toronto: The Arnt-Gill Co. 1905.

This new atlas of Canada should prove useful to the many who are interested in the recent rapid material progress of Canada and in the new trans-Canadian railway. The maps are on a large scale and clearly printed, the statistics are the latest available, and the text contains a good summary of the history and resources of each province of the Dominion.

The Bontoc Igorot. By A. E. Jenks. Pp. 266. 7½ x 10½ inches. With 160 full-page plates. Manila: Ethnological Survey Publications. Vol. I. 1905.

The author of this volume and his wife lived for five months in the pueblo of the Bontoc Igorots, who are a primitive mountain tribe of Luzon. His description of the people is made especially valuable by the large number of excellent photographs accompanying the report. The Bontoc Igorots are an exceedingly dirty people, not 5 per cent of them being free of skin sores, but otherwise Mr Jenks has nothing but good to say of them. He found them honest, of kindly and likable disposition, courageous, industrious, and will-

ing to learn. The Ethnological Survey is doing good work in studying the primitive inhabitants of the Philippine Islands. A previous report on "The Negritos" was noticed in this magazine several months ago.

Report of the Smithsonian Institution for 1904. Pp. 800. 6 x 9 inches. Illustrated. Washington: Government Printing Office. 1905.

The Report of the Smithsonian Institution for 1904 contains papers of geographic value, as follows:

On Mountains and Mankind. Douglas W. Freshfield.

Morocco. Theobald Fischer.

The Work of the Reclamation Service. F. H. Newell.

The Yuma Reclamation Project. J. B. Lippincott.

The Pearl Fisheries of Ceylon. Prof. W. A. Herdman.

Flying Fish and Their Habits. Dr Theodore Gill.

An Inquiry Into the Population of China. W. W. Rockhill.

The Economic Conquest of Africa by the Railroads. A. Fock.

The Present Aspects of the Panama Canal. William H. Burr.

The Sanitation of the Isthmian Canal Zone. W. C. Gorgas.

The Projected New Barge Canal of the State of New York. Col. Thomas W. Symons.

Archæology of the Pueblo Region. Edgar L. Hewett.

NATIONAL GEOGRAPHIC SOCIETY

THE annual dinner will be on December 20. For special announcement see page 569.

THE POPULAR COURSE

The addresses in this course are delivered in the National Rifles Armory, 920 G street, at 8 p. m.

December 8—"What Shall be Done with the Yosemite Valley." By Mr William E. Curtis. Illustrated.

The Yosemite Valley has been receded to the federal government by act of the California legislature, but has not yet been formally accepted by Congress.

December 22—"An Attempt at an Interpretation of Japanese Character." By Hon. Eki Hioki, First Secretary of the Japanese Legation.

December 23 (Saturday)—"A Military Observer in Manchuria." By Major Joseph Kuhn, U. S. A. Illustrated.

January 5—"Russia and the Russian People." By Mr Melville E. Stone, General Manager of the Associated Press.

January 19—"Railway Rates." By Hon. Martin A. Knapp, President of the Interstate Commerce Commission.

January 25 (Thursday)—"The Ziegler Polar Expedition of 1903–1905." By Messrs W. S. Champ, Anthony Fiala, and W. J. Peters.

A novel feature of this meeting will be the exhibition of moving pictures of Arctic scenes.

February 2—"Austria Hungary." By Edwin A. Grosvenor, LL. D., Professor of International Law in Amherst College, author of "Constantinople," "Contemporary History," etc.

February 10 (Saturday)—"A Flamingo City." By Dr Frank M. Chapman, American Museum of Natural History.

February 16—"Africa from Sea to Center." By Mr Herbert L. Bridgman. Illustrated.

Africa in transition today challenges the attention of the world. Few intelligent Americans know to what extent its possibilities have been developed since Livingstone's day, a development that in rapidity promises to exceed that of North America.

February 20 (Tuesday)—"China." By Hon. Charles Denby, of the State Department.

February 23—"The Personal Washington." By Mr W. W. Ellsworth, of the Century Company. Illustrated.

This is not a lecture in the ordinary sense of the word, but it is an exhibition, through the medium of the stereopticon, of the greatest collection of prints, manuscripts, and letters referring to the personal side of Washington ever brought together.

March 2—"Our Immigrants: Where They Come from, What They Are, and What They Do After They Get Here." By Hon. F. P. Sargent, U. S. Commissioner General of Immigration. Illustrated.

March 16—"Oriental Markets and Market Places." By Hon. O. P. Austin, Chief U. S. Bureau of Statistics. Illustrated.

March 30—It is hoped that official business will permit the Secretary of the Navy, Honorable Charles J. Bonaparte, to address the Society on "The American Navy."

April 13—"The Regeneration of Korea by Japan." By Mr George Kennan. Illustrated.

SCIENTIFIC MEETINGS

The meetings of this course are held at the home of the Society, Hubbard Memorial Hall, Sixteenth and M streets, at 8 p. m.

December 12 (Tuesday)—"Norway as it is." By a Norwegian, Rev. B. E. Bergesen.

December 15—"Surveying our Coasts and Harbors." By Hon. O. H. Tittmann, Superintendent U. S. Coast and Geodetic Survey.

December 29—"Problems for Geographical Research." By Gen. A. W. Greely, U. S. A.

"The Binding Power of Road Material." By Mr A. S. Cushman.

January 12—Annual meeting. Reports and elections. "Progress in the Reclamation of the West." By Mr F. H. Newell, Chief Engineer Reclamation Service.

January 26—"The Carnegie Institution." By President R. S. Woodward.

February 9—"The Introduction of Foreign Plants." By Mr David G. Fairchild, Agricultural Explorer, U. S. Department of Agriculture.

February 24 (Saturday)—"Hunting with the Camera." By Hon. George Shiras, Member of Congress from 3d District, Pennsylvania.

March 9—"The United States Bureau of the Census." By Hon. S. N. D. North, Director.

March 23—"The Death Valley." By Mr Robert H. Chapman, U. S. Geological Survey.

April 6—"The Total Eclipse of the Sun, July, 1905, as Observed in Spain." By Rear Admiral Colby M. Chester, U. S. N., Superintendent U. S. Naval Observatory.

April 20—"The Protection of the United States Against Invasion by Disease." By Dr Walter Wyman, Surgeon-General Marine Hospital Service.

The Nansen of the Antarctic

THE VOYAGE

OF THE

"DISCOVERY"

BY

CAPT. ROBERT F. SCOTT, R. N.

WONDERFULLY ILLUSTRATED IN COLOR
AND FROM PHOTOGRAPHS
2 VOLS. $10.00 NET

THE "DISCOVERY"

The story of the latest and greatest Antarctic exploration graphically told by the commander of the expedition.

"Captain Scott has done a splendid piece of work; not the least part of it is the production of the ablest and most interesting record of travel to which the present century has yet given birth."
—*London Spectator.*

Jungle Trails and Jungle People

THE UNKNOWN SAKAI

BY

CASPAR WHITNEY

ILLUSTRATED FROM UNIQUE PHOTOGRAPHS
$3.00 Net. POSTAGE, 23 CENTS

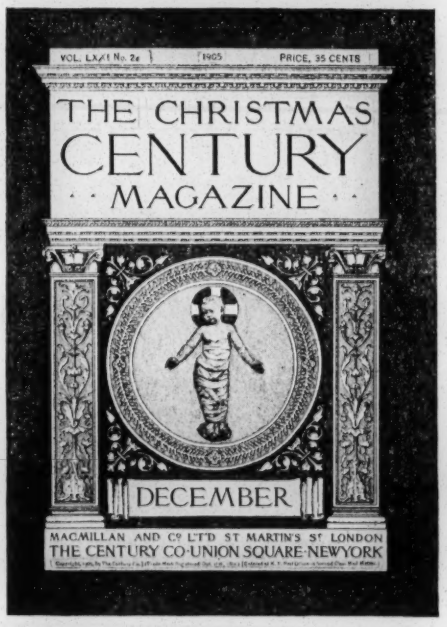
Remarkable accounts of travel and big game hunting in the Malay Peninsula, Siam, Sumatra, and other parts of the Far East.

"If the palm might be awarded to the American writer of the most fascinating stories and sketches of travel in the by-paths of the world, it would go to Caspar Whitney."
—*Cleveland World-News*

CHARLES SCRIBNER'S SONS NEW YORK

Mrs. Humphry Ward's Latest Novel "Fenwick's Career" began in November

Free to New Subscribers



Eight Pages in Full Color

Eight Pictures in Tint

Ten Short Stories

The Christmas Century

No more beautiful or more entertaining number of a magazine has ever been put forth than the *Christmas Century.*

Here is Alfred Domett's Christmas Hymn, "It Was the Calm and Silent Night!" superbly illustrated in color by J. C. Leyendecker; here are complete stories by Myra Kelly ("Star of Bethlehem," an exquisite chapter of New York East Side life), by Alice Hegan Rice, Jacob A. Riis, Lawrence Mott, Maurice Francis Egan, Julian Hawthorne ("Lovers in Heaven"), George Hibbard and others.

Among the articles are Frank M. Chapman's "Intimate Study of the Pelican," with its remarkable pictures, and Miss Katharine Carl's personal study of the Empress Dowager of China. The illustrations include a series of pictures "Scenes in Lower New York," by Thornton Oakley. The first instalment of the entertaining study of "Lincoln the Lawyer" is in the *Christmas Century.*

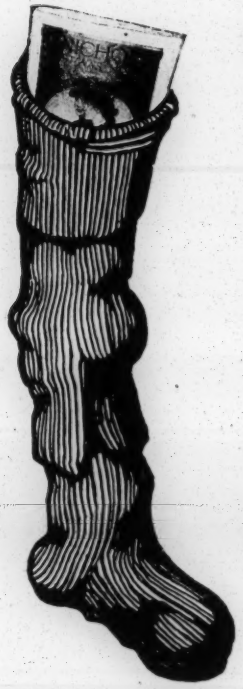
As a Christmas Gift

Nothing can be more welcome than a year's subscription to *The Century* — "a necessity to modern men and women." The November number containing the first chapters of Mrs. Humphry Ward's novel will be sent free of charge to new yearly subscribers who begin with December. A pretty colored certificate of subscription sent when desired.

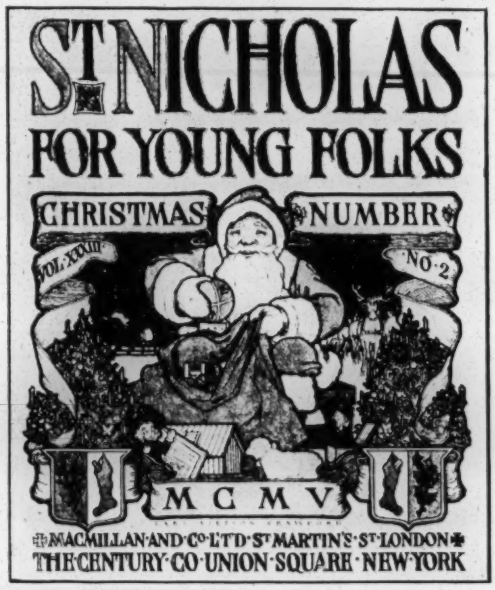
Price $4.00 a year.

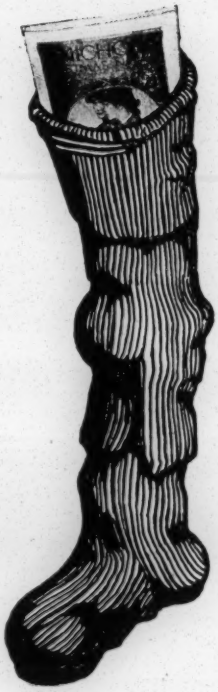
The Century Co.

UNION SQUARE, NEW YORK.



Top off the stocking right





ST. NICHOLAS

and SANTA CLAUS have been inseparable for thirty-three years. Together at Christmas time they have gone into the best homes in the land, leaving an influence for good upon the lives of ***millions*** of boys and girls. "St. Nicholas" is the favorite with Santa Claus because it is the best young folks' periodical published — Santa could be fooled one or two years, perhaps, but not thirty-three — and the way children devour it proves the rest. Besides, every subscription he leaves brings joy not only at the time, but for eleven succeeding months. Let Santa Claus this year bring your boys and girls a year's subscription — and put the Christmas number at the ***top*** of the stocking.

THE coming year will be a fine one. Send for "A Library in Itself," in colors, which tells all about 1906. Begin a subscription with the December number and we will send November free. The subscription will be held until Christmas, if you wish, and a beautiful certificate sent to the recipient of the gift. Don't put it off. Do it now! A whole year of joy for $3.00.

THE CENTURY CO., Union Sq., New York

A Monumental Work Now in Press

The IRELAND REPORT *on* COLONIAL ADMINISTRATION IN THE FAR EAST

This Report (the first volume of which will appear in January, 1906), by MR ALLEYNE IRELAND, F. R. G. S., the acknowledged foremost authority on Comparative Colonization, will extend to ten or twelve volumes, covering exhaustively the field of British, French, Dutch, and American government in the tropical regions of the Far East, and will furnish

The Only COMPREHENSIVE WORK in ENGLISH on this IMPORTANT SUBJECT

IN ITS ENTIRETY THE WORK WILL INCLUDE VOLUMES ON

BURMA, HONGKONG, BRITISH NORTH BORNEO, SARAWAK, STRAITS SETTLEMENTS, FEDERATED MALAY STATES, FRENCH INDO-CHINA, JAVA, and the

PHILIPPINE ISLANDS

The great value of this work to all students of Political Science will be readily appreciated in view of the growing importance of the Far Eastern Tropics, both in their commercial relations and as an element in International Politics.

SOME REPRESENTATIVE SUBSCRIBERS:

The following list of a few of the subscribers who have already registered their order for one or more sets of THE IRELAND REPORT will indicate the estimation in which this important work is held in all parts of the world. In addition to these, very many subscriptions have been received from State and Public Libraries, Educational Institutions, Officials, Statesmen, and private individuals both in the United States and abroad.

U. S. Department of State
U. S. War Department
U. S. Department of Justice
U. S. Dept. Commerce and Labor
Library of Congress
(*Additional to the copies required for purposes of copyright.*)
U. S. Military Academy
U. S. Infantry and Cavalry School
Government of Porto Rico
Government of the Moro Province, Philippine Islands
Maj. Gen. Leonard Wood, U. S. A.
Hon. Nelson W. Aldrich, U. S. S.
Library of Parliament, Ottawa
Parliament of the Commonwealth of Australia
H. E. Sir Matthew Nathan, K. C. M. G., Governor of Hong-kong
H. E. Sir Cavendish Boyle, K. C. M. G., Governor of Mauritius

Rt. Hon. A. J. Balfour, M. P.
Foreign Office, London
Colonial Office, London
India Office, London
British Embassy, Washington
British Museum
Royal Geographical Society
Royal Colonial Institute
Minister of Colonies, The Hague
H. E. Everard im Thurn, C. B., C. M. G., Governor of Fiji
Harvard University
Yale University
Columbia University
Princeton University
Cornell University
Trinity College, Hartford
University of Nebraska
"The Times," London
"The Nation," New York
"The Independent," New York

H. H. The Raja of Sarawak
H. E. Phya Sri Sahadheb, Vice-Minister of Interior, Siam
Government of Siam
Government of Burma
Government of Hong-kong
Government of Madras
Government of Bengal
Government of United Provinces
Government of Ceylon
Gov't of the Straits Settlements
Government of Southern Nigeria
Government of Mauritius
Government of Selangor
Government of Perak
Government of Wei-hai-wei
Gov't, East Africa Protectorate
Gov't, Federated Malay States
British North Borneo Company
"The Rangoon Gazette," Burma
"The Atlantic Monthly," Boston

SOME OPINIONS OF THE REPORT:

From **Sir CHARLES BROOKE, G. C. M. G.,** *Raja of Sarawak:*

"I feel no hesitation in saying that the Reports will be found very valuable to any one who takes an interest in distant foreign governments, of which Mr Ireland has reported clearly and justly."

From **JACOB GOULD SCHURMAN, LL.D.,** *President of Cornell University:*

"Your work will meet a real need in our literature. . . . Your Tropical Colonization is a guarantee of your qualifications to make the undertaking one of high character."

From **Sir FRANK SWETTENHAM, K. C. M. G.,** *former Governor of the Straits Settlements and High Commissioner for the Federated Malay States:*

"From what I have seen of Mr Ireland and his work, there is no doubt that he will do justice to his subject, and I feel great confidence that his facts will be reliable."

From **WOODROW WILSON, LL.D.,** *President of Princeton University:*

"I know how interesting and important Mr Ireland's Report on Colonial Administration is likely to be, and I will take pleasure in recommending it to our librarian."

For Other Opinions of Mr Ireland's Work, See Opposite Page

SMALL, MAYNARD & COMPANY, 55 Arrow St., Cambridge, Mass.

Some Recent Opinions of Mr Ireland's Work

The Publishers of THE IRELAND REPORT ON COLONIAL ADMINISTRATION IN THE FAR EAST (described on the opposite page) would call attention to the following very remarkable comments of the Press upon Mr Ireland's last published book, a volume of brief studies in the administration of tropical dependencies, entitled "THE FAR EASTERN TROPICS," which was published by Messrs Houghton, Mifflin & Co. in the spring of 1905.

The Geographical Journal (*London*) [*Organ of the Royal Geographical Society*]	"The author has a claim to a hearing if only on the score of his long and extensive investigations in the special field he has chosen; but, as the reader soon discovers, this is by no means the sum of his qualifications. Mr Ireland's style is conspicuous for clarity of reasoning and expression, and his criticism is so eminently characterized by sound common sense and acute observation that he should carry conviction to the minds of his readers."
The Times (*N. Y.*)	**"The clearest, sanest, best reasoned, and frankest investigation that has yet been made of American rule in the Philippines."**
The Standard (*London*)	"Mr Ireland brings to the consideration of American administration in the Philippine Islands a trained mind, special aptitude for analytical investigation and critical observation, and a lucid pen with which to set down his many impressions and considered conclusions."
The Times (*London*)	**"The book is a notable contribution to political literature. It is one of the few books, and they are all modern, which deal truthfully and with full knowledge with the realities of Colonial Administration."**
The Dial (*Chicago, Ill.*)	"The volume belongs to the best type of literature on Colonial Countries. There is every evidence of careful and painstaking study; and the book has the unusual merit of being, on the whole, definite and precise in its statements."
The Springfield Republican	**"The present rank that Mr Ireland has obtained as a specialist in this field is fully deserved, for he has spent fifteen years studying Tropical Colonization at close range, and he writes with notable clearness and understanding."**
Philadelphia Public Ledger	"The quality of trained and conscientious work shows, even where its expression is limited to a few brief chapters. Mr Ireland has at once made a contribution to our store of knowledge and has stimulated our sense of responsibility as citizens of a 'World-Power.'"
The Outlook (*London*)	**"The book may be commended for its general accuracy, for its directness, for the soundness of its method, and its arguments. Mr Ireland's very sound advice may be commended to all administrators in tropical places."**
The Morning Post (*London*)	"The volume is crammed with carefully digested facts . . . . it is admirably designed to stimulate interest in a mass of questions which are every day becoming of increasing importance."
The Washington Post	**"Mr Ireland presents his facts in a clear and interesting manner, and is logical and convincing. He writes of the Islands not only with knowledge of them, but also with an intimate knowledge of the United States; remarkable and unusually correct for an Englishman."**
The Globe Democrat (*St. Louis, Mo.*)	"A forceful style and keen vision, enlivened by ready wit, make a subject that might seem dry in itself full of charm and interest in Mr Ireland's hands."
The Speaker (*London*)	**"Mr Ireland's qualifications for his task were unique, and whatever expectations were formed of the author of the classical volume on Tropical Colonization have been fully realized. The articles make one of the most valuable studies in comparative administration that we possess."**

As only a limited edition of THE IRELAND REPORT will be printed, it is desirable that all who wish to secure a set should register their subscriptions at once.

Full information will be forwarded on application to the Publishers.

SMALL, MAYNARD & COMPANY, 55 Arrow St., Cambridge, Mass.

JUST PUBLISHED

AFTER FOUR YEARS' WORK

the publishers of Lippincott's Gazetteer of the World, for the past fifty years the standard dictionary of universal geography, announce the early publication of an entirely new book, rewritten and reset from cover to cover. Only the framework or skeleton of the old book has been retained, together with the system of pronunciation introduced by that high authority, Dr. Joseph Thomas.

There are Upwards of 27,000 Additional Titles in

LIPPINCOTT'S NEW GAZETTEER

Edited by ANGELO HEILPRIN and LOUIS HEILPRIN

IT is a detailed picture of every corner of the world in the 20th Century, with statistics of population, productions, mining, manufacture, physical geography, explorations, and general history accurately up to date. The exceptional qualifications of the editors, Angelo Heilprin, of Yale University, and Louis Heilprin, the experienced legicographer, and their corps of expert assistants, assure the highest standard of accuracy. It is the business man's geographical reference book of the globe; it is an indispensable adjunct to the library of every newspaper editor, and merits a position in every school and home library.

ACCURATE **UP-TO-DATE** **PRACTICAL**

"A volume remarkable for the amount of information it contains, based upon official data from every quarter of the globe."
—*The Boston Herald*

Over 2,000 Pages. Quarto. Sheep, $10.00 net
Half Russia, $12.50 net. Patent Index, 50c. Extra

Send for Descriptive Circular

J. B. LIPPINCOTT COMPANY Philadelphia

INDEX

Page

Abruzzi, Duke, referred to..... 440
Adams, George I., Erasmus Haworth, and W. R. Crane, Report on economic geology of the Iola Quadrangle by..... 444
Africa probably circumnavigated 600 B. C.. 489
—, Marvelous progress of..... 498
African dates, American tea and..... 42
Alaska, A growing camp in the Tanana gold fields of..... 104
—, Experimental work in..... 85
—, Exploration of..... 251
—, Publications relating to..... 513
—, Returns from 513
—, Russian settlements in, referred to..... 410
—, Some notes on the Fox Island Passes..... 427
Aleshire, J. B., cited on Filipino laborers..... 190
Alexander, A. B., Report on fisheries by..... 527
Algæ in water supplies, Means of destroying..... 44
Algué, José, cited on climate of the Philippines..... 192
Alkali lands, Reclamation of..... 82
Alkaloids, Poppy..... 43
Along the Nile with General Grant, Review of..... 307
Aller, J. A., Report on collections of mammals from Beaver county, Michigan..... 444
America, Future of road-making in, Book on..... 253
—, North, Book on..... 135
— —, Ship canals connecting the Great Lakes of... 477
—, United States of, Review of..... 508
American Canals, The Great, Review of.. 254
— Forestry Congress..... 51
— — —, Book containing proceedings of.. 136
— immigration, Early..... 3
— race, Our ignorance of the peoples blending into the..... 10
— tea and African dates..... 42
— tropics, Economic importance of the plateaux in. 250
— topographers, Tribute to..... 358
— water service, Beginning of the..... 257
Anderson, George E.; The wonderful canals of China..... 68
Anderson, J. G., and Otto Nordenskjold, Book on "Antarctica" by..... 443
Anderson, R. H., and J. C. Hoyt, Report on hydrography of the Susquehanna River basin by.....444, 520
André, Eugene, Book on A Naturalist in the Guianas by..... 89
Anemia in Porto Rico, Review of..... 252
Angler fish (The Purple Veil)..... 337
Anglo-Japanese alliance, The purpose of the..... 333
Animals and meat, The inspection of..... 41
—, Producing new breeds of..... 41
Antarctica, Review of..... 443
Antarctics, The great ice mass of, disappearing.... 493
Arbitration in The Hague court, Review of..... 133
Arrelano, C. S., cited on judiciary of Philippines.. 191
Arizona, Ranches of..... 88
Ashford, Bailey K., Book on Anemia in Porto Rico.. 252
Aspinwall, Henry, referred to..... 447
Atwood, Nathaniel E., cited on angler fishing..... 338
Atwood, W. W., referred to..... 250
Atkinson, Edward; Some lessons in geography.... 192
Austin, O. P.; Commercial prize of the Orient, The.. 399
—, Address by, reprinted in Japanese..... 421
—, Elected to Board of Managers, National Geographic Society..... 87
—, quoted on the great canals of the world..... 475
—, referred to..... 87
Australia, Future of..... 570
Austria-Hungary, Immigrants from..... 5

Bahama Islands, Book on..... 136
Baird, Nathaniel, cited on angler fishing..... 338
Baker, Emelie Kip, Book on "Out of the Northland" by..... 91
Baldwin-Ziegler expedition referred to..... 355
Balkan desire for emigration to the United States.. 9
Ballard, Walter J.; The population of Japan 482
—; European populations.. 432

Page

Barrell, S., referred to..... 250
Barrow, David P., cited on tribes of the Filipinos.. 192
Barrows, Samuel J., Book on Italians in America... 524
Bascom, Florence, Report on water resources of the Philadelphia district..... 444
Basinger, T. G. referred to..... 426
Batavia Quadrangle, Geological Survey map of..... 125
Bell, Alexander Graham, elected to Board of Managers, National Geographic Society..... 89
—, thanked by National Geographic Society..... 342
Bell, Mrs Alexander Graham, thanked by National Geographic Society..... 342
Bell, Charles J., thanked by National Geographic Society..... 342
Bell, Mrs Charles J., thanked by National Geographic Society..... 342
Bell, Gardiner H., thanked by National Geographic Society..... 342
Bell, Grace H., thanked by National Geographic Society..... 342
Bell, Helen A., thanked by National Geographic Society..... 342
Bell, Robert W., thanked by National Geographic Society..... 342
Beverage, A. J., cited on "Russian Advance"..... 332
Biological Survey, Work of..... 84
Blanchard, Nathaniel, cited on angler fishing..... 338
Blair, Emma Helen, and James Alexander Robertson, Book on Philippine Islands by..... 307, 443
Bohio Lake and dam..... 453
Bowie, Edward L., cited on determining storm movements..... 289
Bowman, Isaiah, and R. L. Sackett, Report on disposal of strawboard and oil wastes by..... 520
Branner, J. C., referred to..... 250
Brandis, Sir Dietrich, referred to 378
Breaking the Wilderness, Review of..... 200
Brignam, Albert Perry, Students' laboratory manual of physical geography by..... 136
British Empire, Cotton cultivation in the..... 249
Brooks, Alfred H.; The exploration of Alaska..... 251
—, cited on goid in Alaska..... 513
—, referred to..... 87
—; Tribute to American topographers..... 358
Brown, Marcus, cited on immigration..... 19
Bunau-Varilla's scheme for Panama Canal..... 469

California, Forestry in..... 444
Calkins, F. C., and George Otis Smith, Report on a geological reconnaissance by..... 444
—, Report on geology and water resources of Washington by..... 520
Canals of China..... 68
Canals of the Great Lakes..... 478
Canals of the world..... 478
Cannon, Joseph, referred to..... 254
Carleton, Mark Alfred, Report on lessons from the grain rust epidemic of 1904..... 444
Census Bureau, referred to..... 504
Century of expansion, Review of..... 526
Chamberlin, R. T., referred to..... 250
Champ, W. S., Leader of the Ziegler relief expedition..... 355, 440
Chapman, R. H., referred to..... 427
Charts of early navigators..... 491
— — 1755, Errors in..... 492
Chauncey, Henry, referred to 447
Chester, Colby M.; The Panama Canal..... 445
Chicago sanitary and ship canal..... 478
Children, Proportion of in country districts..... 508
— — — the United States..... 505
China and the United States; Sir Chentung Liang Cheng..... 554
—, Immigration from..... .....
—, Progress in..... 52
—, Recent development of, compared to that of Japan and India..... 414
—, What is the population of..... 306, 572

Page

China, Wonderful canals of ... 68
Chinese boycott, Cotton and the ... 516
— labor for Mexico ... 481
Chittenden, Alfred K., Report on forest conditions of northern New Hampshire by ... 443
Chittenden, F. H., and William F. Hubbard, Report on the basket willow by ... 443
Cities, Statistics of ... 437
Citrous fruits, New ... 42
Civilizations, The supposed birthplace of ... 499
Clapp, Frederick G., Report on limestones of southwestern Pennsylvania ... 444
Clark, C. E.; The population of China ... 6
Clark, Wm B., referred to ... 250
Cleveland, President, referred to ... 387
Climate, Deforestation and ... 397
Climate, Effect of the sea upon ... 496
Clinton, De Witt, cited on forests ... 386
Coast and Geodetic Survey referred to ... 144, 427, 509
Cobb, Collier, referred to ... 250
Coe, Robert, referred to ... 426
Collier, Arthur J., Report on work in Alaska by ... 513
Collins, C. M., Report on the Avocado by ... 527
Colon harbor ... 456
—, Storms at ... 456, 472
Colquhoun, A. R., cited on Philippines ... 363
Commerce, The possibilities of, multiplied by inventions ... 411
Commercial geography, Gannett's book on ... 520
Contract labor law ... 12
Cook, O. F., and Walter T. Swingle, Report on evolution of cellular structures by ... 527
Copernican theory, referred to ... 256
Corbett, L. C., Report on raspberries by ... 443
—, school gardens by ... 443
Corinth canal ... 476
Cormorants, Fishing with ... 213
Cotton and the Chinese boycott of ... 516
—, Boll weevil, Experimental work in combating the ... 83
—, Cultivation of in the British Empire ... 249
—, Cultural work on ... 43
Coville, Frederick V., referred to ... 229
Cox, Ulysses G. Report on revision of cave fishes in the United States by ... 527
Crane, W. R., George I. Adams and Erasmus Haworth, Report on economic geology of the Iola Quadrangle by ... 444
Cripple Creek District, Colorado ... 424
Croatians, Immigration of ... 8
Cronstadt and St Petersburg ... 476
Crop investigation and forage ... 43
Crops requiring little water ... 44
Cuban seed tobacco, Growth of ... 82
Culebra Cut, The, referred to ... 456
Cummin, K. D., referred to ... 425
Cushing, H. P., referred to ... 250
Cyclonic storms ... 260

Daibutsu, The great, Origin of ... 95
Dai-Nippon (Japan), Review of ... 134
Dall, William H., referred to ... 251
—, Chapter on paleontology in Bahama Islands by ... 136
Dalton, Jack, referred to ... 251
Dalmatian settlements ... 9
Dam, The highest in the world ... 240
Darton, N. H.; The Central Great Plains ... 390
Darwin, Charles, referred to ... 194
Davis, A. P.; Views on what forestry means to representative men ... 443
Davis, Charles H., referred to ... 446
Davis, W. M.; Tides in the Bay of Fundy ... 71
—, referred to ... 250, 499
Day, David T., Geographic excursionists' gift to ... 199
—, Report on mineral resources of United States ... 444
— — — gold and silver production in 1903 by ... 444
— — — stone industry in 1903 ... 444
Decisions of U. S. Board on Geographic Names ... 131, 358
Deforestation and climate ... 397
Dellenbaugh, F. S., Book on breaking the wilderness by ... 200

Page

Densmore, Frank, referred to ... 251
Denton Quadrangle, Maryland, Map of, issued ... 425
Desert, Utilizing the ... 242
Detweiler, Frederick May, Obituary of ... 52
Dewey, Admiral, referred to ... 460
Dewey, Melvil, Book on A. L. A. catalogue of 3,000 volumes by ... 136
Dodge, Richard Elwood, Advanced geography by ... 307
—, Elementary Geography by ... 52
Dunstan, W., cited on cotton cultivation in British Empire ... 249
Dutton, Clarence Edward, Book on earthquakes by ... 136
Duvel, J. W. T.; Report on the vitality of buried seeds ...
Dyer, Henry, Book on Japan by ... 134

Early Western Travels, Review of ... 253
Earthquakes, Review of ... 360
Earth's heat, The cause of the ... 124
Eckert, Max, Book on Grundriss der Handelsgeographie by ... 308
Edwards, Clarence R., referred to ... 87
Ellis, J. R., referred to ... 426
England, Transportation in ... 88
Erosion, Water theory of ... 249
European populations ... 432
Excursions and lessons in home geography, Review of ... 307
Exploration of world nearly completed ... 492
Explorations in Turkestan, Book on, referred to ... 499
Exports and manufactures ... 434

Fairchild, David G., Book review by ... 89
—, cited on the wattle tree ... 131
—, Report on seeds and plants imported by ... 443
Fairchild, Mrs David G., thanked by the National Geographic Society ... 342
Fairchild, H. L., referred to ... 249
Far East, Select list of books relating to ... 91
Far Eastern Tropics, Review of ... 525
Farman, Elbert E., Book on Along the Nile with General Grant by ... 91, 309
Farmers, Helping the ... 39, 82
Fay, W. T.; Parsees and Towers of Silence, Bombay ... 529
Fetichism in West Africa, Review of ... 135
Feudal system in Japan ... 222
Filipino, Average size of family of ... 188
—, Census of the ...
— industries awaiting development ... 140
Filipinos, Educating the ... 46
—, Revelation of the ... 139
Finland, Immigration from ... 9
Fish, Catching, with intoxicants ... 233
Fisheries of Japan ... 201
—, Report of the Commission of ... 444
Fitzgerald, Desmond, referred to ... 371
Flamingo, The story of the ... 51
Fleming, Walter L., Summary of address by ... 517
Floods ... 302
Forage crops, New ... 44
Foreman, John, criticised by Secretary Taft ... 362
Forest reserves, Federal ... 387
Forestry at home (the United States) ... 383
— — — and abroad ... 375
— Congress, American ... 51
—, First steps in ... 386
— in British India, Germany, France, and Switzerland ... 377
—, Modern ... 376
—, Present situation of ... 45
Forests, Study of insects damaging the ... 83
— vital to our welfare ... 515
Fortnightly Review referred to ... 362
Foster, John W., book on arbitration in The Hague court ... 133
Foureau expedition referred to ... 77
Fox Island Passes, Alaska, Some notes on ... 427
Franklin, Benjamin, Researches of ... 256

Page

French conquest of the Sahara ... 76
Fruit, Cold storage and marketing of ... 44
Fuller, Myron L., Report on underground waters of Eastern United States by ... 444, 520
—, Index of hydrographic reports ... 520
Fundy, Tides in the Bay of ... 71

Game laws, Enforcement of ... 84
Gannett, Henry, Book reviews by ... 199, 200, 524, 526, 572
—, Assistant director of Philippine census, Report by ... 139
—, "Commercial Geography" by ... 520
—, Editor, Report of Eighth International Geographic Congress ... 199
—, elected to Board of Managers, National Geographic Society ... 87
—, Gazetteer of Indian Territory by ... 444
—, Origin of certain place names ... 444
—, Report on results of primary triangulation and primary traverse ... 444
— ; Water erosion theory a fallacy ... 249
Ganz, Hugo, Book on Russia by ... 91, 135
Garriott, E. B., Report on Long weather forecasting by ... 443
Garrison, Carl Louise, Book on commercial geography by ... 52
Geographen Kalender, 1905-1906, Review of ... 360
Geographic Congress, Eighth International, Proceedings ... 198, 519
—, Some titles of subjects discussed by the ... 519
Geographic literature ... 82, 89, 133, 199, 253, 520
Geographic names, Decisions of U. S. Board on ... 131, 358
— — in the United States and the stories they tell ... 100
Geographic Society, National, Home of ... 342
— — —, Meetings of ... 53, 54, 87, 92, 137, 241, 250, 257, 527, 575
— — —, Annual dinner of ... 570
—, By-laws of ... 137
Geographic textbooks:
Dodge's "Advanced Geography" ... 307
Dodge's "Elementary Geography" ... 52
Gannett's "Commercial Geography" ... 520
McMurry's "Excursions and Lessons in Home Geography" ... 307
Tarr's "New Physical Geography" ... 52
Geographical knowledge essential to men of affairs ... 85
Geography; Sir W. J. L. Wharton ... 483
— and culture ... 70
—, Some lessons in ... 143
Geologic folios in schools ... 244
Geological Survey, United States, referred to ... 389
—, Maps recently issued by ... 43, 125
— of Canada for 1894, cited ... 71
Geology, Field course in ... 250
Gerdine, T. G., referred to ... 426
German people, Industrial training of ... 111
Gerrare, Wirt, Book on Greater Russia cited ... 342
Gilbert, J. J.; Some notes on the Fox Island Passes, Alaska ... 427
Gill, Theodore, cited on angler fish ... 337
—, Report on State ichthyology of Massachusetts by ... 444
Goldfish farms in Japan ... 217
Gorham, Frederic P., and M. C. Marsh, Report on the gas disease in fishes by ... 527
— — — special commission for investigation of lobster, etc., by ... 443
Gorgas, William C., referred to ... 460
—, cited on mosquito campaign ... 473
Government reports, Some recent ... 443, 527
Grasses, Investigation of standard ... 43
Grave, Caswell, Report on oyster industry promotion by ... 443
Great Lakes, Canals of the ... 475
Great Plains, The Central ... 389
Greater Russia, Book on, referred to ... 332
Greely, A. W., Elected to Board of Managers, National Geographic Society ... 87
—, Book reviews by ... 133, 134, 135, 254, 307, 308, 360
—; Russia in recent literature ... 564
Greece, Immigration from ... 9

Page

Gregory, R. A., and T. H. Huxley, Book on Physiography by ... 136
Griffin, Albert Prentiss Clark, Select list of books relating to the Far East by ... 91
Griffiths, David, Note on bulletin by ... 88
—, referred to ... 244
Grosvenor, Edwin A.; The evolution of Russian government ... 309
Grosvenor, Gertrude Hubbard, thanked by National Geographic Society ... 342
Grosvenor, Gilbert H.; A revelation of the Filipinos ... 139
—; Birthplace of civilization ... 499
—, Book reviews by ... 89, 136, 524, 526, 575
—; Cause of the Earth's Heat ... 124
—; Central Great Plains ... 388
—, elected to Board of Managers, National Geographic Society ... 87
—; Gannett's Commercial Geography ... 520
—; Gardens of the West ... 118
—; Geographic notes ... 27, 39, 46, 50, 82, 87, 125, 198, 241, 342, 397, 423, 432, 480, 504, 513
—; Industrial Training of German People ... 111
—, member Board of Publication of Eighth Geographic Congress ... 199
—; Our Immigration in 1904 ... 15
—; Progress on the Panama Canal ... 467
—; Progress in the Philippines ... 116
Grosvenor, Mrs Gilbert H., thanked by National Geographic Society ... 342
Grosvenor, Melville Bell, thanked by National Geographic Society ... 342
Grundriss der Handelsgeographie, Review of ... 308
Guilho-Lohan referred to ... 79
Guam, Our smallest possession ... 229
Guianas, A naturalist in the, Book on ... 89
—, The present people of ... 236
Guatemalan ant, Colonies of the ... 83
Guerdrum, George M., referred to ... 425
Guertin, W. C., referred to ... 426

Haack, Hermann, Geographic calendar by ... 360
Hague conference referred to ... 58
Hague, James D., referred to ... 115
Hale, Edward Everett, Philip Nolan and the "Levant" ... 114
Hall, Benjamin M., Report on water power of Alabama, with an appendix on stream measurement by ... 444
Hall, C. W., referred to ... 250
Hall, W. C., and J. C. Hoyt, Report on River surveys and profiles made during 1903 by ... 520
Hamilton, E. G., referred to ... 425
Hamlin, Homer, Report on underflow tests in basin of Los Angeles River ... 520
Harmer, F. W., cited on changes of climate ... 493
Harper, Arthur, referred to ... 251
Harris, Townsend, referred to ... 222
Harrison, President, referred to ... 387
Harter, L. L., Report on the variability of wheat varieties in resistance to toxic salts ... 527
Hay, John, referred to ... 334
Hay, Wm. Perry, Report on a revision of Melaclemmys, etc., by ... 444
— — — the life history of the blue crab by ... 527
Haynes, American consul, referred to ... 432
Hawkins, George T., referred to ... 426
Hayward, Roland, Photographs by ... 71
Haworth, Erasmus, Report on economic geology of the Iola Quadrangle by ... 444
—, referred to ... 250
Heidenstrom, O. G., Book on Swedish life in town and country ... 136
Heilprin, Angelo, Elected to Board of Managers, National Geographic Society ... 87
—, Book on Tower of Pelée by ... 89
Highways, Historic, and pioneer roads, Review of ... 254
Hinds, W. E., and W. D. Hunter, Report on the Mexican cotton boll weevil by ... 527
Hioki, Eki; A chapter from Japanese history ... 220
—; The purpose of the Anglo-Japanese alliance ... 333

Page

Hobbs, W. H., referred to. 250
Hodges, K. M., referred to..... 87
Hooker, Sir Joseph, cited on slopes of Mt Terror... 494
Hopkins, T. C., referred to..... 250
Houston, Edwin J., Book on commercial geography by..... 520
Hoyt, John C., and Robert M. Anderson, Report on hydrography of the Susquehanna River by... 444, 520
— and W. C. Hall, Report on river surveys and profiles made during 1903..... 520
— and B. D. Wood, Index of hydrographic progress. 520
Hubbard, Mrs Gardiner Greene, thanked by National Geographic Society..... 342
Hubbard, Wm F., and F. H. Chittenden, Report on the basket willow by..... 443
Hulbert, Archer Butler, Book on "The future of road-making in America" by..... 253
—, Book on historic highways of America by..... 136
—, The great American canals by..... 254
Humboldt, Alexander von, cited on deforestation. 398
Hunter, W. D., and W. E. Hinds, Report on the Mexican cotton boll weevil by..... 527
Hutchins, Thomas, A topographical description of Virginia, etc., Review of..... 360
Huxley, T. H., and R. A. Gregory, Book on physiography by..... 136

Immigration and the Southern States..... 517
— — naturalization..... 51
—, Character of our..... 1
— during the nineteenth century..... 4
—, Early American..... 3
—, Effect of our unchecked. 11
— in 1904, Our..... 15
— — 1905, Our..... 431
Immigrants, Ambitions of certain..... 18
— from Italy, Austria-Hungary, and Russia..... 5
—, Occupations of..... 27
—, Racial distribution of..... 26
India and Japan, recent development of..... 414
— — —, Railway construction in, referred to..... 415
Industries, New plant..... 42
Investigations of standard grasses and forage crops. 43
Ireland, Alleyne, Views of, regarding Philippines criticised.. ..... 363, 525
Irrigation projects commenced by the United States..... 120
Isthmian Canal: *See* Panama Canal.
Isthmian Canal Commission, referred to..... 448
— — —, Plan recommended by..... 450
Italians in America..... 5, 524

Jackson, D. D., Report on the normal distribution of waters, etc., by..... 520
Jaggar, T. A., referred to..... 250
Japan, An early visit from Russia to..... 225
— by the Japanese, Review of..... 133
— and India, recent development of..... 414
— and the United States..... 432
—, Dyer's book on..... 134
—, Feudal system of, in 1868..... 222
Japan more democratic than European countries.. 223
—, The fisheries of..... 201
—, The population of... 482
—, Foreign commerce of..... 357
Japanese appreciation of what Perry did 221
Japanese people, Characteristics of the..... 94
— history, A chapter from..... 220
— jury of twelve judges founded 670 years ago..... 97
— life in town and country, Review of. 135
— literature, Part taken by women in..... 95
Jefferson, Thomas, referred to..... 257
Johnson, W. D., report on the relation of the law to underground waters..... 520
Johnson, Willis Fletcher, Book on a century of expansion by..... 526

Kaneko, Kentaro; The characteristics of the Japanese people..... 94
Kaweah Quadrangle, Map of, issued by Geological Survey..... 126

Page

Kellogg, James L., Report on the special commission for the investigation of the lobster, etc., by.. 443
Kellogg, Royal S., Report on forest planting in Western Kansas by..... 443
Kelvin, Lord, referred to..... 124
Kellerman, Karl F., and George T. Moore, Report on copper as an algicide and disinfectant by 443
Kennico, Robert, referred to..... 251
Kent, Saville, cited on angler fishing..... 337
Keyes, C. R., Report on geology and underground water conditions of the Jornado del Muerto, N. M., by..... 520
Ketchikan 508
Kindle, Edward M., and Henry Shaler Williams, Report on contributions to Devonian paleontology by..... 444
Knox, George William, Book on Japanese life in town and country by..... 135
Kongo Free State, The story of, Review of..... 200
Krainers, Immigration of..... 9

Lake City Quadrangle, Map of, issued by U. S. Geological Survey 125
Lamb, John..... 443
Landes, Henry, Preliminary report on the underground waters of Washington by..... 520, 444
Lansdowne, Lord, referred to..... 333
Land of Riddles, Russia of today, Review of.. 135
Lantz, David E., Report on coyotes in their economic relations by..... 443
Lathrop, Barbour, referred to..... 89
Laramie Quadrangle, Map of, issued by U. S. Geological Survey..... 426
Latin-America, The peace of..... 479
Legazpi, cited on early natives of Guam..... 236
Lee, W. T., Report on underground waters of Salt River Valley..... 520
Leighton, Marshall Ora, Preliminary report on the pollution of Lake Champlain by..... 444, 520
Leith, Charles Kenneth, Report on rock cleavage by..... 444
Levant, Philip Nolan and the..... 114
Lhasa, Views of..... 27
Lincoln, President, referred to..... 57
Lindgren, Waldemar and Frederic Leslie Ransome, Report on progress in the resurvey of Cripple Creek by..... 444
Lippincott, J. B., Report on water problems of Santa Barbara 520
Littlehales, George W.; Modern hydrographic surveys of the coasts of the world 63
—, referred to..... 87
Livingstone, David, referred to..... 349
Long Lake Quadrangle, Map of, issued by U. S. Geological Survey 423
Lull, E. P., referred to..... 446
Lord, Eliot, John J. D. Trenor and Samuel J. Barrows, Book on the Italians in America by..... 524

McKinley, President, referred to..... 388
McMurry, Book on excursions and lessons in home geography by..... 91
McNess, George T., and George B. Massey, Report on tobacco investigation in Ohio by..... 527
McQuestin, Jack, referred to..... 257
McSweeny, Z. F.; The character of our immigration, past and present 1
Magellan, The coming of, to Guam..... 229
Magyars, Immigration of..... 8
Manila, Docks and improvements at..... 142
Maps, The earliest 428
Manufactures, Exports of..... 434
Marsh, M. C., and F. P. Gorham, Report on the existing diseases of fishes by..... 527
Martin, George C., Report of work in Alaska by... 573
Masa, Sadero, cited on claims of the Philippines... 192
Massey, George B., and George T. McNess, Report on tobacco investigations in Ohio by.. 527
Mendenhall, W. C., Reports on underground waters of coastal plain regions in California..... 520

Page

Merrill, George F., Book on the non-metallic minerals by ... 52
Meriwether, Colyer, Cotton cultivation in the British Empire ... 249
—, Book reviews by ... 37, 52, 53, 253, 254, 307, 308, 360, 443
Meteorology, The new ... 306
Mexico, Chinese labor in ... 481
—, The prosperity of ... 398
Migrations, Modern ... 2
—, World ... 1
Milch goat, The ... 237
Miller, Benjamin Leroy, Chapter on Geology on the Bahama Islands by ... 136
Mines and quarries, Our ... 342
Minerals, The non-metallic, Review of ... 52
Mir, The (Russian) village ... 312
Mitchell, Guy E., referred to ... 443
Moffitt, Fred H.; Fairhaven gold placers, Seward Peninsula ... 513
Mongol Tatars ... 313
Moon, The, Review of Pickering's book on ... 253
Moore, George T.; Report on soil inoculation by ... 443
— and T. R. Robinson, Report on beneficial bacteria for leguminous crops by ... 443
— and Karl F. Kellerman, Report on copper as an algicide and disinfectant by ... 443
Moore, Willis L., Announcements by ... 241
—; Elected President National Geographic Society. 87
—; Forecasting the weather and storms ... 255
—, referred to ... 87, 306, 440, 570
Mount Weather Observatory ... 41
Murphy, R. C., Report on destructive floods in the United States in 1904 by ... 520

Nassau, Robert Hamill, Book on fetichism in West Africa by ... 135
Naturalization and immigration ... 51
Navigation, Early, Chart of ... 491
Needle Mountains Quadrangle, Map of, issued by Geological Survey ... 424
Negritos of Zambales, Book on ... 358
Negroes Proportion of children among ... 508
Newell, F. H., Report on proceedings of second reclamation conference by ... 520
—, referred to ... 123, 443
Nile, Along the, with General Grant, Book on ... 91
Nitrogen-fixing bacteria ... 46
Niwot Quadrangle, Map of, issued ... 126
Nobel prizes, Why no Americans have received the. 51
Nolan, Philip, and the "Levant" ... 114
Norman, Henry, Book on "All the Russias" cited. 332
Nordenskjold, Otto, and J. G. Anderson, Book on Antarctica by ... 443
North America, Review of ... 135
Northland, Out of the, Book on ... 91
Notes from our consuls ... 126
Norway and Sweden, A comparison of ... 429

Observatory, Mount Weather ... 41
Oceans, Recent study of ... 496
Olmstead, Victor H., cited on the United States and the Philippines ... 139
Opium war, referred to ... 410
Orgeries, Renoust, referred to ... 77
Orient, Commercial prize of the ... 399
—, Our advantages in commerce with the ... 421
—, Russia an early arrival in the ... 410
Osoyoos Quadrangle, Map of, issued by U. S. Geological Survey ... 126
Ouray Quadrangle, Colorado ... 423
Ovando Quadrangle, Map of, issued ... 126

Page, James, member of publication committee of Eighth International Geographic Congress ... 199
Paige, Sydney; A growing camp in the Tanana gold fields ... 104
Panama Canal, The ... 445
— — Company, Early plans of the ... 449
— —, Fearful loss of life at ... 450

Page

Panama Canal, Progress on ... 467
— — Problem of sanitation at ... 457
— —, Note on map of the ... 441
—, Republic of, Movements in the ... 441
— —, What has been accomplished on; Theodore M. Shonts ... 558
— — Route, The ... 446
Panama City, The mosquito campaign at ... 473
Parsees of India ... 529
Pearls, Artificial cultivation of ... 218
Peary's new vessel ... 192
— start in 1905 ... 482
Pedro Miguel Lakes, referred to ... 456
Penck, Albrecht, cite: on a tribute to American topographers ... 358
Perez, Enrique, cited on South American affairs ... 479
Perry, Commodore, Diplomacy of ... 220
Peters, W. J., Report on Ziegler relief expedition by ... 440
—, referred to ... 198, 355, 570
Philippine civil service ... 371
— Islands, Book on, 1493-1898 ... 91
— —, Review of ... 397, 443
Philippines, The; William H. Taft ... 361
—, Census of ... 139
—, Commercial products of the ... 148
—, Education in the ... 149
—, Geography of ... 144
—, Expense of our government in ... 374
—, Labor problem in ... 142
—, Map of ... 361
—, Mr Krusi's method of getting laborers in ... 373
—, Notes on ... 87
—, Number of islands ... 145
—, Pearl fisheries in ... 191
—, Summary of report on the ... 139
—, Volcanic origin of ... 144
Philips, Philip Lee; Check lists of large school maps published by foreign governments ... 136
Phœnician voyagers, The well-known secrecy of ... 491
Pickering, William H., Book on the moon by ... 252
Pigafetta, Antonio, cited on Guam ... 229
Pillot, Mrs Peter Stuyvesant, thanked by National Geographic Society ... 342
Pillot, Rosalie, thanked by National Geographic Society ... 342
Pinchot, Gifford; Forestry at home and abroad ... 375
Piper, C. V., Report on grass lands of the South Alaska coast ... 527
Plains, The Central Great ... 389
Plant industries, New ... 42
Poland, Immigration from ... 8
Polar expedition, The Ziegler ... 439
— exploration ... 482
Porto Rico, Anemia in, Book on ... 253
Population of China, What is the ... 306
Price, Overton W., referred to ... 443
Prindle, L. M., Report on gold placer mining in Alaska ... 513
Pumpelly, Raphael, Report on Turkestan explorations by ... 499
Purrington, C. W., Work on report of Alaska in 1904 by ... 513
Public school, Study of plants in ... 42
Putnam, G. R., cited on Philippines ... 145

Quadrangles, Maps of, issued by Geological Survey. 125
Quinton, J. H., Report on experiments with steel-concrete pipes ... 520

Rabot, Charles; French conquest of the Sahara ... 76
Railway operating property in the United States, Value of ... 438
Ransome, Frederick Leslie; Report on progress in the Geological resurvey of the Cripple Creek district ... 444
Reeder, Congressman, referred to ... 443
Ritter, Homer F.; Note on the activity of Shishaldin volcano ... 249
Rittue, E. C. and C. O. Townsend, Report on developments of single-germ beet seed by ... 443

Page

Road-making in America, Book on 253
Robertson, James Alexander and Emma Helen Blair, Book on the Philippines by..... 307
Robinson, T. R., and George T. Moore, Report on beneficial bacteria for leguminous crops by..... 443
Rodjestvensky, Admiral, referred to..... 332
Rogersville Quadrangle, Map of, issued..... 425
Romanoffs, The first..... 322
Roosevelt, President, cited on cotton and the Chinese boycott..... 516
— — — forestry 515
— — — immigration and naturalization..... 51
Ross, Dr J. W., referred to..... 460
Rossiter, W. S., referred to..... 192
Ruriks, The..... 313
Russell, Israel Cook, Book on North America by... 135
Russia; Charles Emory Smith..... 55
— in recent literature 564
—, Early arrival in the Orient by..... 410
— — — visit to Japan from..... 225
— of today, the land of riddles, Book on..... 92
—, The early rulers of..... 313
Russian constitution rejected by the people..... 329
— government, Evolution of; Edwin A. Grosvenor.. 309
Russians, The peculiar attitude of, to the Tsar..... 311
Russo-Japanese war in Japan and Manchuria, Observations on the 80
Rutherford, Ernest, cited on cause of earth's heat... 124

Sackett, Robert Lemuel, and Isaiah Bowman, Report on the disposal of straw board and oil waste by..... 444, 520
Safford, William E.; Our smallest possession, Guam 229
Sahara, French conquest of the..... 76
Salineville Quadrangle, Map of, issued by Geological Survey..... 126
Salisbury, R. D., referred to..... 250
Salt from the sea, Gathering..... 219
Salt River reclamation project..... 441
Sanger, J. P., Report of as Director Philippine Census..... 139
Sargent, Frank, Report of, on immigration cited... 215
Sault Ste Marie Canal..... 477
Schaeffer, Charles, Report on additions to the coleoptera, etc..... 444
Schrenk, Hermann von, Report on the condition of treated timbers by..... 443
Scott, Captain, cited on Antarctics..... 494
Sea level canal, Advantages of a..... 464
Seaman, Dr Louis Livingston; Observations on the Russo-Japanese war..... 80
Seward, Secretary of State, cited on Russia and civil war..... 56
Seaweeds, Edible..... 219
Seaweeds of the United States..... 244
Shaler, N. S., referred to..... 250
Shattuck, George B., Report on geology of the Bahama Islands by..... 136
Shaw, Leslie M., address by, cited..... 514
Sherwood, George H., Report of the special commission for the investigation of the lobster and soft-shell clam by..... 443
Shidy, L. B., Chapter on tides in book on Bahama islands by..... 136
Shima, Famous women divers of..... 217
Shishaldin volcano, Note on the activity of..... 249
Shonts, Theodore P., referred to..... 467
—, The Panama canal..... 558
Siberian railways, referred to..... 417
Skykomish Quadrangle, Map of, issued by Geological Survey..... 426
Slichter, C. S., Report on field measurements of the rate of underground water..... 520
Slovaks, Immigration of..... 8
Slovanians, Immigration of..... 8
Smallwood, Mabel E., Report on salt-marsh amphipod by..... 444
Smith, Charles Emory: Russia..... 55
Smith, George Otis, and Frank C. Calkins, Report on a geological resurvey across Cascade range by.. 444
Smith, Glenn S., referred to..... 425

Page

Smith, Hugh M., Report on the special commission for the investigation of the lobster, etc., by..... 443
— — — — seaweed industry of Japan and the utilization of the seaweed in the United States by..... 444
—; The fisheries of Japan..... 201
Smith, J. Russell; The economic importance of the plateaux in tropic America..... 250
Smith, W. P., Consular report of..... 88
Soil survey, The..... 46
Solar eclipse, Expedition to observe the..... 88
Southern States, Immigration to the..... 517
Snyder, John Otterbien, Report on the mylocheilus laterales, etc., by..... 527
Sparks, Edwin E., Book on the United States of America by..... 136, 308
Spencer, Arthur C., Report on Alaska by..... 513
Spillman, W. P., cited on utilizing the desert..... 242
Spurr, J. E., Report on the geology of Tonepah, etc., by..... 527
Stead, Alfred, Book on Japan for the Japanese by.. 133
Stevens, John Lloyd, referred to..... 447
Stevenson, Earl C., Report on the external parasites of hogs by..... 443
Stockman, Wm. B., Report on periodic variation of rainfall in the arid region..... 443
Stone, Ralph W., Report on Alaska by..... 513
Storage of fruits, Cold..... 44
Storms, The translation of..... 257
Storer, D. H., cited on angler fish..... 338
Storms, Anti-cyclonic..... 262
—, Cyclonic..... 262
—, New method for determining the direction and velocity of..... 289
Strabo, the great geographer, referred to..... 484
Strachay, Sir Richard, referred to..... 484
Stranahan, William, referred to..... 427
Students' laboratory of physical geography, Book on..... 92
Suez Canal..... 475
Sugar beet seed, Improvement in..... 42
Sullivan, John T., referred to..... 446
Sundbärg Gustav; Book on Sweden, its people and its industry..... 252
Surveys by British navy officers..... 287
Sutton, C. W., referred to..... 426
Sutton, Frank, referred to..... 425
Sweden, its people and its industry..... 252
— and Norway, A comparison of..... 429
Swingle, Walter T., and O. F. Cook, Report on evolution of cellular structures by..... 527
Syria, Immigration from..... 9

Taft, William H.; The Philippines..... 361
—, referred to..... 150, 241, 358, 471
Tanana gold fields, A growing camp in the..... 104
Tarr, Ralph S., New physical geography by..... 52
Tatum, Mr Sledge, referred to..... 425
Tavero, T. H. Pardo de, History of Philippines by. 191
Tea, American..... 41
Terrapin farms..... 214
Thompson, George Fayette, Information concerning milch goats by..... 443
Through Town and jungle, Review of..... 199
Thwaites, Reuben G., Book on early western travels by..... 253
Tibet, New knowledge of..... 495
Tides in the Bay of Fundy..... 71
Tittmann, O. H., cited on work of Coast and Geodetic Survey..... 127
—, Ketchikan..... 508
Tobacco, Growth of Cuban seed..... 82
Topographers, A tribute to American..... 358
Tornadoes..... 300
Torres, cited on judiciary in the Philippines..... 191
Tower of Pelée, Book on..... 89
Towers of Silence, India..... 529
Townsend, C. O., and E. C. Rittue, Report on the development of the single-germ beet seed by..... 443
Tsars, General character of the..... 330
Trenor, John J. D., Book on Italians in America by..... 524
Tweedy, Frank, referred to..... 427

Page

United States, Farms of the ... 39
—, Fisheries of ... 522
—, Foreign colonies in the ... 18
—, Immigration of: *See* Immigration.
—, Japan and the ... 432
—, Mines and quarries ... 342
—, Proportion of children in the ... 505
—, Products of ... 523
—, The commercial valuation of railway operating property in the ... 438
Urquhart, C. F., referred to ... 426

Vadis Quadrangle, Map of, issued by the U. S. Geological Survey ... 126
Veil, The Purple, a romance of the sea ... 337
Victoria Falls, The ... 349
Villari, Luigi; Book on Russia ... 564
Vina Quadrangle, Map of, issued by the U. S. Geological Survey ... 126

Wack, Henry Wellington, Book on the story of the Kongo Free State by ... 200
Walker, J. G., referred to ... 446
Walcott, Charles D., referred to ... 443
Wallace, Sir Donald Mackenzie; Book on Russia ... 564
Warren, Senator, referred to ... 443
Water, Amount of the lower strata of ... 497
Watkins, James L.; Report on the commercial cotton crop ... 527
Wayne Quadrangle, Map of, issued by the U. S. Geological Survey ... 426
Waves, Hot and cold ... 263
Weather and storms, Forecasting the; Willis L. Moore ... 255
Weather Bureau, U. S., referred to ... 40, 131, 255
Weather chart, how made ... 253
Week, Henry Wellington, Book on the story of the Kongo Free State by ... 200
Weeks, Fred Boughton, Bibliograph and index of South American geology, paleontology, etc., by ... 444
Welborn, W. C., cited on Filipino trades ... 514
Welland Canal ... 477
Weller, Stuart, referred to ... 250

Page

Weston Quadrangle, Map of, issued by the U. S. Geological Survey ... 126
West, The gardens of the ... 118
West, Leonard, cited on the angler fish ... 338
Wharton, Sir W. J. L.; Geography ... 483
Whitbeck, R. H.; Geographic names and the stories they tell ... 100
Whites, Proportion of children among ... 505
Wilder, F. A., Report on the lignite of North Dakota and its relation to irrigation by ... 444, 520
Wilderness, Breaking the, Book on ... 200
Wiley, H. W.; Report on experiments in the culture of sugar cane, etc ... 527
Wilcox, Walter F.; Report on proportion of children in the United States ... 504
Williams, Henry Shaler, and Edward M. Kindle, Report on contributions to Devonian paleontology by ... 444
Wilson, James, report of ... 39, 82
Winchell, Alexander N., Report on boundaries of Minnesota by ... 444
Windom, Secretary, referred to ... 13
Women divers, Famous, of Shima ... 217
Wood, B. D., and J. C. Hoyt, Index of hydrographic progress, Reports of the U. S. Geological Survey by ... 520
Woodsfield Quadrangle, Map of, issued by the U. S. Geological Survey ... 427
Woodworth, J. B., referred to ... 250
Workman, Henry and Fannie Bullock, Book on through towns and jungles by ... 199
World, Chart of the ... 50, 87
—, The highest dam in the ... 440
—, Great canals of the ... 475
—, Marine hydrographic surveys of coasts of the ... 63
— migrations ... 1
Wright, Charles W., Report on the Porcupine placer district, Alaska, by ... 444
Wright, F. E. and C. W., Report on Alaska by ... 513
Zambales, Negritos of, Book on ... 358
Zemstvos, when created ... 61
Ziegler polar expedition ... 198, 439
Ziegler, William, obituary ... 355
Zon, Raphael, Report on the chestnut in southern Maryland by ... 443

THE

NATIONAL GEOGRAPHIC MAGAZINE

AN ILLUSTRATED MONTHLY

EDITOR: GILBERT H. GROSVENOR

ASSOCIATE EDITORS

GENERAL A. W. GREELY
Chief Signal Officer, U. S. Army

W J McGEE
Chief Department of Anthropology and Ethnology, Louisiana Purchase Exposition

C. HART MERRIAM
Chief of the Biological Survey, U. S. Department of Agriculture

WILLIS L. MOORE
Chief of the Weather Bureau, U. S. Department of Agriculture

O. H. TITTMANN
Superintendent of the U. S. Coast and Geodetic Survey

O. P. AUSTIN
Chief of the Bureau of Statistics, Department of Commerce and Labor

DAVID G. FAIRCHILD
Agricultural Explorer of the Department of Agriculture

ALEXANDER GRAHAM BELL
Washington, D. C.

DAVID T. DAY
Chief of the Division of Mineral Resources, U. S. Geological Survey

ALFRED H. BROOKS
Chief of Alaskan Division, U. S. Geological Survey

ANGELO HEILPRIN
Academy of Natural Sciences, Philadelphia

R. D. SALISBURY
University of Chicago

G. K. GILBERT
U. S. Geological Survey

ALEXANDER McADIE
Professor of Meteorology, U. S. Weather Bureau, San Francisco

ALMON GUNNISON
President St Lawrence University

VOL. XVI—YEAR 1905

PUBLISHED BY THE NATIONAL GEOGRAPHIC SOCIETY
HUBBARD MEMORIAL HALL
WASHINGTON, D. C.

NATIONAL GEOGRAPHIC SOCIETY

THE NATIONAL GEOGRAPHIC SOCIETY was organized and incorporated under the laws of the District of Columbia January 27, 1888. The object of the Society is the increase and diffusion of geographic knowledge. The Society accomplishes its object:

1. By encouraging worthy plans for exploration and by helping such projects when its resources permit. 2. By publishing an illustrated monthly Magazine and many large maps. 3. By an annual series of thirty addresses at the National Capital, most of which are published in the Society's Magazine. 4. By the maintenance of a library.

MEMBERSHIP

Is not confined to professional geographers, but includes many who are interested in the advance of geographic knowledge. Its present membership, at the close of the eighteenth year of its history, is 10,000, of whom 1,400 are resident in Washington and 8,600 distributed throughout every State in the Union and in many foreign countries. Candidates for admission in the Society must be proposed by members. The membership fee is $2 per annum, with no entrance fee. Life membership fee is $50. All members receive free of charge the Magazine and maps published by the Society.

OFFICERS

The affairs of the Society are conducted by a Board of twenty-four managers elected by the Society. Eight members of the Board are elected at each annual meeting of the Society. The present officers are

WILLIS L. MOORE, *President.*
JOHN JOY EDSON, *Treasurer.*
ELIZA R. SCIDMORE, *Foreign Secretary.*
HENRY GANNETT, *Vice-President.*
O. P. AUSTIN, *Secretary.*
GILBERT H. GROSVENOR, *Editor.*

BOARD OF MANAGERS

1903–1905	1904–1906	1905–1907
O. P. AUSTIN	HENRY F. BLOUNT	ALEXANDER GRAHAM BELL
CHARLES J. BELL	C. M. CHESTER	ALFRED H. BROOKS
T. C. CHAMBERLIN	F. V. COVILLE	HENRY GANNETT
GEORGE DAVIDSON	D. C. GILMAN	A. W. GREELY
JOHN JOY EDSON	S. H. KAUFFMANN	GILBERT H. GROSVENOR
DAVID G. FAIRCHILD	WILLIS L. MOORE	ANGELO HEILPRIN
A. J. HENRY	ISRAEL C. RUSSELL	R. H. TITTMANN
C. HART MERRIAM	R. D. SALISBURY	JOHN M. WILSON

CONTENTS

	Page
The Character of our Immigration, Past and Present; by Z. F. McSweeny, formerly Assistant Commissioner of Immigration	1
Our Immigration during 1904	15
Views of Lhasa	27
The Farmers of the United States	39
Educating the Filipinos	46
Chart of the World	50
Why no Americans have received Nobel Prizes	30
The Story of the Flamingo	50
American Forest Congress	50
Immigration and Naturalization	51
Progress in China	52
Obituary (Frederick May Detweiler)	52
Geographic Literature	52
"New Physical Geography" (Ralph S. Tarr)	52
"The Non-metallic Minerals" (George P. Merrill)	52
"Dodge's Elementary Geography" (Richard Elwood Dodge)	53
National Geographic Society	53
Program of Meetings, 1905	54
Chart of the World on Mercator's Projection, 25 x 45 inches	Supplement
Russia; by Hon. Charles Emory Smith, formerly Minister to Russia and ex-Postmaster General	55
Marine Hydrographic Surveys of the Coasts of the World, with maps; by George W. Littlehales	63
The Wonderful Canals of China; by U. S. Consul George E. Anderson, Hangchau, China	68
Geography and Culture	70
Tides in the Bay of Fundy; by W. M. D.	71
French Conquest of the Sahara; by Charles Rabot, Editorial Secretary of "*La Geographie*," Member of the Council of Societé de Geographie de Paris	76
Observations on the Russo-Japanese War in Japan and Manchuria; by Dr. Louis Livingstone Seaman	80
Helping the Farmers	82
National Geographic Society	87
Chart of the World	87
Notes on the Philippines	87
Transportation in England	88
To Observe Solar Eclipse	88
Ranges of Arizona	88
Geographic Literature	89
"The Tower of Pelée" (Angelo Heilprin)	89
"A Naturalist in the Guianas" (Eugène André)	89
"The Philippine Islands, 1893-1898" (Blair and Robertson)	91
"Along the Nile with General Grant" (Elbert E. Farman)	91
"Out of the Northland" (Emilie Kip Baker)	91
"Select List of Books Relating to the Far East" (Edited by Prentiss Clark Griffin)	91
"Excursions and Lessons in Home Geography" (Charles A. McMurry)	92

Page

"Students' Laboratory of Physical Geography" (Albert Perry Brigham) 92
"The Land of Riddles—Russia of Today" (Hugo Ganz) 92
National Geographic Society 92
The Characteristics of the Japanese People; by Baron KENTARO KANEKO, of the House of Peers of Japan 93
Geographic Names in the United States and the Stories they Tell; by R. H. WHITBECK, New Jersey State Normal School 100
A Growing Camp in the Tanana Gold Fields, Alaska; by SIDNEY PAIGE, of the U. S. Geological Survey 104
The Industrial Training of the German People 111
Philip Nolan and the "Levant;" by EDWARD E. HALE 114
Progress in the Philippines 116
The Gardens of the West 118
The Cause of the Earth's Heat 124
Maps recently issued by the Geological Survey 125
Notes from our Consuls 126
Work of the Coast and Geodetic Survey 127
The Australian Wattle Tree 130
U. S. Weather Bureau in Hawaii 131
Decisions of U. S. Board on Geographic Names 131
Geographic Literature 132
"Arbitration in the Hague Court" (John W. Foster) 133
"Japan by the Japanese" (edited by Alfred Stead) 133
"Dai Nippon" (Japan) (Henry Dyer) 134
"The Land of Riddles" (Dr Hugo Ganz) 135
"North America" (Israel Cook Russell) 135
"Fetichism in West Africa" (Robert Hamill Nassau) 135
"Japanese Life in Town and Country" (George William Knox) 135
"The Proceedings of the American Forest Congress" 136
"The Bahama Islands" 136
"Check List of Large Scale Maps Published by Foreign Governments" (compiled under direction of Philip Lee Phillips) 136
"Earthquakes" (Clarence Edward Dutton) 136
"The United States of America" (Edwin Earl Sparks) 136
"A. L. A. Catalog of 8,000 Volumes for a Popular Library" (editor, Melvil Dewey) 136
"Swedish Life in Town and Country" (O. G. Van Heidenstam) 136
"Historic Highways of America" (The Arthur H. Clark Co.) 136
"Students' Laboratory Manual of Physical Geography" (Albert Perry Brigham) 136
"Physiography" (T. H. Huxley and R. A. Gregory) 136
National Geographic Society 137
A Revelation of the Filipinos; by GILBERT H. GROSVENOR 139
Commander Peary's New Vessel 192
Some Lessons in Geography; by EDWARD ATKINSON 193
The Ziegler Polar Expedition 198
Eighth International Geographic Congress 198
Geographic Literature 199
"Through Town and Jungle" (William Hunter Workman and Fannie Bullock Workman) 199
"The Story of the Kongo Free State" (Henry Wellington Wack) 200
"Breaking the Wilderness" (F. S. Dellenbaugh) 200

Page

National Geographic Society ... 200
The Fisheries of Japan ; by HUGH M. SMITH, Deputy U. S. Fish Commissioner ... 201
A Chapter from Japanese History ; by EKI HIOKI, First Secretary of the Japanese Legation ... 220
Our Smallest Possession—Guam ; by WILLIAM E. SAFFORD ... 229
The Milch Goat ... 237
National Geographic Society ... 241
Utilizing the Desert ... 242
The Seaweeds of the United States ... 244
Geologic Folios in Schools ... 244
The Activity of Shishaldin Volcano ; by HOMER P. RITTER ... 249
Cotton Cultivation in the British Empire ; by C. M ... 249
Water Erosion Theory a Fallacy ... 249
The Economic Importance of the Plateaux in Tropic America ; by J. RUSSELL SMITH, Ph. D ... 250
The Exploration of Alaska ; by ALFRED H. BROOKS, Chief of Alaskan Division, Geological Survey ... 251
Geographic Literature ... 252
"Anemia in Porto Roco" (Bailey K. Ashford) ... 252
"Sweden ; Its People and Its Industry" (edited by Gustav Sundbärg) ... 252
"The Moon" (William H. Pickering) ... 253
"Early Western Travels, 1748-1845" (edited by Reuben G. Thwaites) ... 253
"The Future of Road-making in America" (Archer Butler Hulbert) ... 253
"The Great American Canals" (Archer B. Hulbert) ... 254
"Historic Highways ; Pioneer Roads" (Archer B. Hulbert) ... 254
Forecasting the Weather and Storms ; by Prof. WILLIS L. MOORE, LL.D , Chief United States Weather Bureau and President National Geographic Society. With 20 full-page charts and 5 illustrations ... 255
What is the Population of China? by Rear Admiral C. E. CLARK ... 306
Note on the article "Forecasting the Weather," etc. ... 306
Note on map showing seat of war in Eastern Asia ... 306
Geographic Literature ... 307
"Excursions and Lessons in Home Geography" (Charles A. McMurry, Ph.D.) ... 307
"The Philippine Islands, 1493-1898" (edited by Emma Helen Blair and James Alexander Robertson) ... 307
"Along the Nile with General Grant" (Elbert E. Farman) ... 307
"Dodge's Advanced Geography" (Richard Elwood Dodge) ... 307
"The United States of America" (Edwin E. Sparks) ... 308
"Grundriss der Handelsgeographie" (Dr Max Eckert) ... 308
Map showing seat of war in Manchuria (18 x 44 inches) ... Supplement
Evolution of Russian Government ; by EDWIN A. GROSVENOR, LL.D., Professor of Modern Government and International Law in Amherst College ... 309
The Purpose of the Anglo-Japanese Alliance ; by Hon. EKI HIOKI, First Secretary of the Japanese Legation ... 333
The Purple Veil—A Romance of the Sea ; by H. A. L ... 337
Our Mines and Quarries ... 342
The Home of the National Geographic Society ... 342
The Geographical Balance ... 342
Diagram Showing Geographical Balance ... 343
The Victoria Falls ... 349

Page

Mr William Ziegler. Obituary ... 355
The Foreign Commerce of Japan ... 357
A Tribute to American Topographers; by A. H. B. ... 358
"The Negritos of Zambeles" ... 358
Decisions of the U. S. Board on Geographic Names ... 358
Geographic Literature ... 360
"Earthquakes" (Clarence Edward Dutton, Major U. S. A.) ... 460
"Thomas Hutchins" (edited by Frederick C. Hicks) ... 360
"Geographen Kalendar, 1905–1906" (Herman Haack) ... 360
The Philippines; by Hon. WILLIAM H. TAFT, the Secretary of War ... 361
Forestry Abroad and at Home; by GIFFORD PINCHOT, Chief of the Bureau of Forestry ... 375
The Central Great Plains ... 389
Deforestation and Climate ... 397
The Prosperity of Mexico ... 398
Map of the Philippines (23 x 36 inches) ... Supplement
Commercial Prize of the Orient; by Hon. O. P. AUSTIN, Chief of the Bureau of Statistics and Secretary of the National Geographic Society ... 400
Maps recently published by the U. S. Geological Survey ... 423
Some Notes on the Fox Island Passes, Alaska; by J. J. GILBERT, U. S. Coast and Geodetic Survey ... 427
A Comparison of Sweden and Norway ... 429
European Population; by WALTER J. BALLARD ... 432
Japan and the United States ... 432
Our Immigration in 1905 ... 434
Note on Map of the Philippines ... 434
Exports of Manufactures ... 434
Comparative Statement showing number of Aliens admitted to the United States in 1905 ... 435
Statistics of Cities ... 437
The Commercial Valuation of Railway Operating Property in the United States ... 438
The Ziegler Polar Expedition ... 439
The Highest Dam in the World ... 440
Note on Map of Panama Canal ... 441
Improvements in the Republic of Panama ... 441
Geographic Literature ... 443
"The Philippine Islands" (Blair and Robertson) ... 443
"Antarctica" (Otto Nordenskjold and J. C. Anderson) ... 443
Some Recent Government Reports ... 443
"Long Range Weather Forecasts" (E. B. Garriott) ... 443
"Soil Inoculation for Legumes" (George T. Moore) ... 443
"Periodic Variation of Rainfall in the Arid Region" (William B. Stockman) ... 443
"Seeds and Plants Imported, 1900–1903" (David G. Fairchild) ... 443
Map of the Region of the Panama Canal, 24 x 33 inches ... Supplement
The Panama Canal; by Rear Admiral COLBY M. CHESTER, U. S. A. ... 415
Progress on the Panama Canal; by GILBERT H. GROSVENOR ... 467
The Great Canals of the World ... 475
The Peace of Latin America ... 479
Forestry in California ... 480
Chinese Labor for Mexico ... 481
Polar Exploration ... 482
The Population of Japan; by WALTER J. BALLARD ... 482

Page

Geography ; by Rear-Admiral Sir W. J. L. WHARTON, K. C. B., F. R. S. ... 483
The Supposed Birthplace of Civilizations ... 499
Proportion of Children in the United States ... 504
Ketchikan ; by O. H. T. ... 508
The Returns from Alaska ... 513
Progress in the Philippines ... 513
The Best Position on the Map ... 514
Forests Vital to Our Welfare ... 515
Cotton and the Chinese Boycott ... 516
Immigration to the Southern States ; Summary of a Study by Prof. WALTER L. FLEMING. 517
An Important Geographic Publication ... 519
Irrigation Reports ... 519
Geographic Literature ... 520
"Commercial Geography" (Henry Gannett, Carl Louise Garrison, and Edwin J. Houston ... 520
"The Italians in America" (Elliot Lord, John J. D. Trenor, and Samuel J. Barrows) . 524
"The Far-Eastern Tropics" (Alleyne Ireland, F. R. G. S) ... 525
"A Century of Expansion" (Willis Fletcher Johnson, L. H. D.) ... 526
Some Recent Government Reports ... 527
National Geographic Society, Meetings of ... 527
The Parsees and the Towers of Silence at Bombay, India ; by WILLIAM THOMAS FEE, U. S Consul General, Bombay ... 529
China and the United States ; by SIR CHENTUNG LIANG-CHENG, K. C. M. G., Envoy Extraordinary and Minister Plenipotentiary from China to the United States ... 554
What Has Been Accomplished by the United States Toward Building the Panama Canal ; by THEODORE P. SHONTS, Chairman of the Isthmian Canal Commission ... 558
Russia in Recent Literature ; by General A. W. GREELY, Chief Signal Officer, U. S. A. ... 562
The New Erie Canal ... 568
Annual Dinner of National Geographic Society ... 570
Australia's future ; by W. J. BALLARD ... 570
World's Production of Gold ... 571
China is Not Overpopulated ... 572
"An Observer in the Philippines" (J. B. Devins) ... 573
"The Philippine Islands" (F. W. Atkinson) ... 574
"Our Philippine Problem" (H. P. Willis) ... 574
"Michigan" (T. M. Cooley) ... 575
"Two Bird Lovers in Mexico" (C. W. Beebe) ... 575
"Arizona Sketches" (J. A. Munk) ... 575
National Geographic Society ... 575

LIST OF ILLUSTRATIONS

	Page
Diagram showing wave of immigration into the United States from all countries during the past 25 years	6
Diagram showing total immigration into the United States	17
Chart showing the ratio of criminality of immigrants	19
United States Immigration Island, New York Harbor	20
United States Immigrant Station, Ellis Island, looking north toward New York city, 1904	21
Children's roof garden, Ellis Island Station, New York	22
Aliens entering Ellis Island Station	23
Types of aliens awaiting admission at Ellis Island Station	24
Types of aliens awaiting admission to Ellis Island Station	25
The palace of the Dalai-Lama at Lhasa	28
Another view of the palace of the Dalai-Lama	29
A view of the palace of the Dalai-Lama from the west	30
A street scene in Lhasa	31
Palace of the old King of Tibet at Lhasa	32
Buddhist temple in the center of Lhasa	33
A view of Lhasa from a neighboring hill	34
The outskirts of Lhasa	35
On the road which circles Lhasa	36
Women from the country on the way to market in Lhasa	37
A farming scene in Tibet	38
Chart of the world on Mercator's projection, 25 x 45 inches	Supplement
Map showing the conditions of the coast surveys of the world	64–65
The Bore coming up the Petitcodiac River at Moncton, N. B	72
High tide on the Petitcodiac River at Moncton, N. B	73
Low tide on the Gaspareaux River, Wolfville, N. S	74
High tide on the Gaspareaux River, Wolfville, N. S	75
Scenes on Lake Tchad	78
A flock of goats on the ranges of Arizona	85
Pelée, with its terminal tower or obelisk	86
On the winter trail to the Tanana gold fields, Alaska	105
One of the first to reach the Tanana gold fields	106
The "first boat out" after the ice—"White Horse"	109
The Tanana gold fields	110
The technical high school at Charlottenburg, Germany	112
The technical high school at Stuttgart, Germany	113
Salt River Canyon, Arizona	118
A typical dam site, Windy Gap, Colorado	119
Site of proposed dam in Gunnison Canyon, Colorado	120
Garfield Point in Grand River Valley, Colorado	121
Sage brush deserts (Minidoka Land) south of Snake River, Idaho	122
Shoshone Falls, Snake River, Idaho	122
Fifteen lignite beds in single section of Little Missouri River near Johnson's Ranch, North Dakota	123
Four coal beds each 4 or 5 feet thick on Little Missouri River	124
A rabbit drive in Southern California	128

Page

The results of a rabbit drive in Southern California 129
Stripping the bark from a 9-year old wattle tree 131
Some supervisors of the Filipino census 153
Governor-Supervisor Ortega and presidentes of la Unión (Ilocanos) 154
Governor-Supervisor Ramos and presidentes, Province of Tárlac (Tagálogs) 155
Enumerators, Province of Lepanto-Bontoc (Igorots) 156
1. Carabao carts. 2. Hemp fiber as brought to market. 3. Trotting bull of Panay. 4. Typical wooden-wheeled bull cart. 5. Carabao with sled 157
Census enumerators, Province of la Laguna (Tagálogs) 158
1. Maguindanao Moro, wife of Chief Ali. 2. Moro women of upper class, Zamboango. 3. Dato and bride. 4. Moros of Lake Lanao, Mindanao. 5. Joló Moro, adult male ... 159
1. Moro showing one way of wearing the sarong. 2. Sanguil Moro warrior in brass helmet and cuirass. 3. Sámal Moros, characteristic dress. 4. Sámal Moro of Zamboanga. 5. Malanao Moro. 6. Yakan Moro 160
Bagobos, Island of Mindanao 161
1. Igorot girl, showing method of stretching hole in lobe of ear. 2. Igorot woman, hair bound up with grass chaplet. 3. Igorot boy. 4. Igorot father and daughter. 5. Igorot warrior in his prime 162
1. Girl spinning. 2. Young woman in typical dress. 3. Woman and child. 4. Girl operating cotton gin 163
1. Mayoyao Igorot, "headman" of Banaue. 2. Igorot. 3. Igorot girl in fern leaf costume 164
1. Native woman with Negrito blood (Remontado). 2. Young man (Remontado). 3. Girl (Remontado). 4. Native man with Negrito blood (Remontado). 5. Girl (Gaddán). 6. Woman (Gaddán) 165
1. Young Negrito women. 2. Negritos making fire by rubbing two pieces of bamboo together. 3. Group of Negritos, Province of Zambales. 4. Negrito showing filed teeth. 5. Negritos in the forest, Province of Isabela 166
1. Tiruray dancer at Cottabato. 2. Ata of Dávao. 3. Group of Mangyans of Mindoro. 4. Mangyan, Province of Mindoro. 5. Monteses, Province of Misamis 167
1. Poling a casco. 2. Canoes made from the log of a single tree. 3. Single-stick outrigger, Laguna de Bay, Lúzon. 4. Moro Vinta. 5. Outriggered sailing craft of Panay and Leyte 168
1. Moro divers, Tapul group. 2. Double-masted outrigger, Laguna de Bay, Lúzon. 3. Sailing craft, Visayas. 4. Moro vinto at Joló. 5. Moro vinta with thatched awning .. 169
1. Fishing in the surf with a scoop net. 2. Selling the catch at the beach. 3. Seine fishing, with fleet of fishing boats in the background 170
1. Fish nets in position for catch. 2. Life on the net raft. 3. Fish weirs, mouth of Pásig River. 4. Net raft, net in position for catching 171
1. Old Moro pirate boat. 2. Cascoes, or the common lighter of the Philippines. 3. Passenger raft on the Magat River, Province of Nueva Vizcaya. 4. Single-stick outrigger. 172
1. Hauling logs with carabao. 2. Ropemaking, Manila. 3. Filipino sawing mill 173
1. Typical Filipino village, Boac, Marinduque. 2. The gap of Vigan, Ilocus Sur. 3. street in Balíuag (Tagálogs), Bulacán. 4. Village of Romblón 174
1. Moro houses on Rio Grande Cottabato, Mindanao. 2. Moro split-bamboo house of common people and slaves. 3. Mixed native architecture of civilized tribes. Stone and mortar superstructure and wooden framework. 4. Example of fine Nipa structure 175
1. Gaddán tree house. 2. A dwelling of the Mamanúas. 3. Tinguian house at Padangita—a feast in progress 176

Page

1. Mayón volcano. 2. Magellan monument, Island of Mactán, erected on the spot where he was killed. 3 Giant forest tree of Mindanao, showing natural buttresses of trunk. 4. Burí palm. 5. Tree fern, province of Benguet. 6. Moro watchtower, Dumaguete, Negros oriental. 7. Native boats 177

1. Church at Malate, Manila. 2. Augustinian church, walled city, Manila. 3. Church of the Recoletos, walled city, Manila. 4. Church at Albay, Albay. 5. Fortified church, at Bóac, Marinduque. 6. De Loma church, Manila 178

1. Tobacco fields, provinces of Cagayán and Isabela. 3. Tobacco leaves arranged in "hands" for curing. 4. Sugar cane, showing the luxurious growth. 5. Crude method of extracting the juice of the sugar cane. 6. Teosinte, or forage plant, recently introduced into the Philippines by the Bureau of Agriculture, Manila. 179

1. Tunnels on gold quartz veins, Benguet Province, Luzón. 2. Blacksmith shop. 3. Saltmaking 180

1. Threshing rice by beating sheaves or stones. 2. Mill for winnowing rice by hand. 3. Hulling rice in wooden mortar with wooden pestles. 4. Planting rice. 5. Hulling rice. 181

1. Filipinos making rope. 2. Ilocanos spinning cotton, Luzón. Primitive loom of the Ilocanos, Luzón 182

1. Climbing the coconut palm for tuba. 2. Husking and splitting coconuts for copra. 3. Coconut tree and fruit 183

1. Coffee plant, showing the remarkable luxuriance of the growth. 2. Stripping abacá (hemp). 3. The abacá, or "Manila hemp" plant. 4. Cacao tree, showing fruit at maturity. 5. Fine samples of Manila hemp, Bureau of Agriculture, Manila. 184

Silver pitcher, presented to David T. Day by the National Geographic excursionists to Mexico 109

Hauling a yellow-tail net, Southern Shikoku 202

A fishery experiment station in the Province of Tosa 204

A trained fishing cormorant, with its cage 205

A cormorant trainer and fisherman 206

Fishing with cormorants, Nagara River 207

Spreading the wet funori on mats to bleach and dry 208

Sprinkling the sheets of funori to prevent curling 209

Gathering the dried sheets of funori for baling and shipment 210

Gathering kelp with poles and drags 211

Drying kelp on the beach in Hokkaido 212

Women engaged in sorting the crude kelp 214

View at an Osaka kombu factory 215

Women divers, province of Shima 216

The forest, Island of Guam 230

On the main road across the Island of Guam 231

A fish intoxicant; the fruit of the *Barringtonia speciosa*, natural size 232

A coffee tree in full bloom, Island of Guam 234

Betel-nut palms 235

Flame tree in the Plaza Caguas, Porto Rico 238

A splendid specimen of the Ceiba tree, or "silk cotton," near Ponce, Porto Rico 239

A group of *Sequoia gigantea*, Mariposa grove, California 240

A group of milch goats 241

One of the common prickly pears of Texas in full fruit 242

Singeing the prickly pear of Texas with a torch 243

A type of pear cutter, as set up and operated 243

Page

Gathering Irish moss at Scituate, Massachusetts ... 244
Bleaching and curing Irish moss at Scituate, Massachusetts ... 245
Excellent examples of weathering near Logan Butte, Cook County, Oregon ... 246
Stacking alfalfa with a derrick on a western farm ... 247
Tamil girls picking tea, Ceylon ... 248
Carts with bamboo covers, Ceylon ... 248
Map of Northern Manchuria (18 x 44 inches) ... Supplement
Chart I. Winter storm, December 15, 1893, 8 a. m. ... 268
Chart II. Winter storm, December 15, 1893, 8 a. m. ... 269
Chart III. Winter storm, December 16, 1893, 8 a. m. ... 270
Chart IV. Cold wave, January 7, 1886, 7 a. m. ... 271
Chart V. Cold wave, January 8, 1886, 7 a. m. ... 272
Chart VI. Cold wave, January 9, 1886, 7 a. m. ... 273
Chart VII. Cold wave, January 10, 1886, 7 a. m. ... 274
Chart VIII. West Indian hurricane, August 27, 1893, 8 a. m. ... 275
Chart IX. West Indian hurricane, August 28, 1893, 8 a. m. ... 276
Chart X. West Indian hurricane, August 29, 1893, 8 a. m. ... 277
Chart XI. The Galveston hurricane, 1900. ... 278
Chart XII. Storm track for August ... 279
Chart XIII. Storm tracks for February ... 280
Chart XVII. Normal storm tracks for May ... 281
Chart XVIII. Tornado at Louisville, Ky., March 27, 1890. Weather map 8 p. m. of this date ... 282
Chart XIX. Tornadoes of 1889—a year of small frequency ... 283
Chart XX. Tornadoes of 1893—a year of small frequency ... 284
Chart XIV. The average lines along which the centers of storms move in July in the Northern Hemisphere ... 290
Chart XV. The average lines along which the centers of storms move in January in the Northern Hemisphere ... 291
A flood scene at Marion, Arkansas, 1903 ... 293
The rush of water through the Holly Bush crevasse, Arkansas, 1903 ... 295
Strengthennig the levees in preparation for the coming of a flood, Lagrange, Mississippi, 1903 ... 296
Chart XVI. Showing method followed in developing normal storm tracks, etc ... 297
Scene in the freight yards at Kansas City after the visitation of a flood, 1903 ... 298
Flood scene in St Louis, 1903 ... 299
Chart showing the low central near New Orleans ... 300
Map showing seat of war in Manchuria, 18 x 44 inches ... Supplement
The Tsar and Tsarina at home ... 313
Latest picture of the Tsar of all the Russias and his interesting family, including Baby Tsarevitch ... 314
Home of Romanoffs, Moscow ... 315
A crowd in Theater Square, Moscow ... 316
Priests of the orthodox Greek Church on a float upon the Neva River, St Petersburg ... 317
Splendid temple of our Saviour in a western district of Moscow ... 318
Old defenses of the Kremlin—the citadel of Moscow ... 319
Russian cloth market in "the Fair" of Nijni-Novgorod, Russia ... 320
The market place, Viborg, Finland ... 321
Old St Petersburg ... 322
A reservoir after evaporation. Turning up the salt, salt fields, Solinen, Russia ... 323

	Page
Moscow workmen in one of the street markets	324
A characteristic Russian troika (three-horse carriage) before the old Petrofski palace in the northwest suburb of Moscow	325
Siberian village of the Tartars, Nijni-Novgorod, Russia	326
Wheat for export at Russia's great southern seaport, Odessa	327
Country women tramping into Krief, Russia, with the morning supply of milk	328
Fig. 1. Three eggs embedded in gelatinous membrane in which they are laid	337
Fig. 2. Young angler taken out of the egg just previous to hatching	338
Fig. 3. Young angler not long after hatching	338
Fig. 4. Young angler with 2 elongated dorsal rays, etc.	338
Fig. 5. Young angler showing still greater increase in length	339
Fig. 6. Young angler in oldest pelagic stage	339
Fig. 7. Young angler of oldest pelagic stage, seen from above	339
Fig. 8. Young angler with most of the characteristics of adults	340
Fig. 9. The common angler	341
Diagram showing production of principal minerals	343
Map showing value per square mile of minerals in United States	343
A vein in a 1,200-foot level, Daly-Judge mine, Park City, Utah	344
An electric coal-cutter	345
View near western end of Great Canyon Sandstone Quarry, Amherst, Ohio	346
Steam drill used in stone quarrying	347
Large granite column-cutting lathe at Vinalhaven, Maine	348
Porto Rico—molding bricks by hand	349
The Grand (Victoria) Falls	350
View of falls seen through the jaws of the gorge	351
View looking into chasm from its eastern end	352
View of bend in canyon	353
The rich and evergreen forest fed by the mists from the falls	334
Portrait of Mr William Ziegler	358
Map of the Philippine Islands (23 x 36 inches)	Supplement
Young Filipinos	367
Primary pupils in a municipal school, Manila	368
Boys in the Normal High School, Manila	369
An exceedingly productive spruce forest in Bavaria	376
Elephants used for dragging logs in the forests of Burma	379
Piling timber in the lumber yards of Burma	380
Piling timber in the lumber yards of Burma	381
A mixed forest in need of an improvement cutting	382
A mixed forest after an improvement cutting	383
Conservative lumbering in the Adirondack Mountains, New York	384
Wasteful lumbering on the Pacific slope	385
Artesian well at Woonsocket, South Dakota	389
Artesian well at Lynch, Nebraska	390
Pulpit Rock, Kansas	391
Big Badlands, South Dakota, east of Flour Trail	392
Greenhorn limestone in Benton group, near Thatcher, Colorado	393
Jail Rock	394
Archway eroded in Monument Creek sandstone, at "Elephant Rock," near Monument, Colorado	395
Cathedral spires, Garden of the Gods, Colorado	396

Page

Map of the Philippine Islands, 23 x 36 inches ..... Supplement
Map illustrating the obstacles to land transportation which rendered early commerce between Occident and Orient extremely difficult 400
Diagram showing the growth of the world during the nineteenth century 402
Diagram. A comparison of the Orient and the remainder of the world in area, population, railroads, telegraphs, and commerce 403
The successive advances of Russia to the Pacific 404
Transportation in China. Camel train outside of the Pekin wall 405
Military gate of Pekin wall 405
An illustration of the enormous development of the commerce of Japan resulting from the construction of railways 406
The network of railroads covering India today and the resultant vast increase in her commerce 407
Railways constructed and proposed in China 408
Telegraph lines of China in 1904 409
A comparison of Japan, India, and China today 410
Elephants with howdahs (Bangkok) which have been eclipsed in popularity by the American trolley car on opposite page 412
Bangkok tramway 413
The awakening of the East. A school for girls, Bangkok 414
A group of Chinese watching an American railway engineer 415
Transportation in China 416
On one of the interior canals of China 417
Transportation in China. A country cart 418
Transportation in China 419
The air and water currents of the Pacific 420
Japanese peasants watching a wrestling contest 433
Map of the Panama Canal (25 x 33 inches) ..... Supplement
Unfinished cuts of the world's greatest canal 451
Rock cut at Bas Obispo 452
The Culebra Cut, looking north 453
Dredge at Gargona 454
A steam shovel at work in the Culebra Cut 458
Panama soldiers at a village on the Bayano River, guarding the pass on the route from Colombia 461
Landing pigs in the harbor of Panama City 465
Indian "dug-outs" on the Chagres River bringing bananas, the chief export of Panama, to Gatun 466
Diagram showing yearly amount of rainfall in inches on the Panama Isthmus 467
Map of the region of the Panama Canal (24 x 33 inches) ..... Supplement
Paikent, a sand-buried city 499
A sand dune advancing across the desert 500
A mosque of medieval Samarkand 501
Folds in the limestone in the Sugun Valley west of Shor Kul, looking west 502
Limestone gorge of the western Kichik Alai 503
The Kirghiz in the Alia Valley 504
Map showing number of children under 5 years of age to 1,000 females 15 to 49 years of age, 1890 506
Map showing number of children under 5 years of age to 1,000 females 15 to 49 years of age, 1900 507

Page

The town of Ketchikan, Alaska, in the spring of 1905 509
Philippine method of threshing rice, government rice farm, Murcia 510
Threshing rice with American machinery, government rice farm, Murcia 511
Map of Alaska, showing mineral deposits so far as known 512
Map showing relative density of railroads in United States and Europe 421
Map showing American fisheries 522
Diagram showing share of the United States in the world's industries and products 532
Fire temple at Udvada 535
Interior of fire temple 536
A Parsee lady in regulation dress 537
The business prince and philanthropist of Bombay 538
A Parsee schoolmaster and his class of boys 539
Navrozjee Maneckjee Wadia 540
A Parsee bride and groom 541
A Parsee school girl in regulation dress 542
A Parsee school girl 543
The Framjee Dinshaw Petit Parsee sanitorium 544
Sir Jamsetjee Jijibhai, third baronet 545
A Parsee wedding 547
The tower of silence at Uran 548
A model of a tower of silence 549
The vultures encircling a tower of silence 550
Ground plan, tower of silence, Malabar Hill 552
Map of new Erie Canal 569

SPECIAL MAPS PUBLISHED BY THE NATIONAL GEOGRAPHIC SOCIETY

Map of the Region of the Panama Canal (24 x 33 inches), in 5 colors
Prepared under the direction of the Isthmian Canal Commission

Chart of the World on Mercator's Projection (48 x 27 inches), in 4 colors
Prepared under the direction of the Hydrographic Office

Map of Alaska (42 x 36 inches), in 3 colors
Prepared under the direction of the U. S. Geological Survey

Map of the Philippines (23 x 36 inches), in 4 colors
Prepared under the direction of the War Department and the Bureau of the Census

Map of South Africa (46 x 33 inches)
Prepared under the direction of the War Department

Map of Northeastern China (36 x 28 inches)
Prepared under the direction of the War Department

A Series of Twelve Maps on the Alaskan Boundary Dispute
Prepared under the direction of Hon. John W. Foster, ex-Secretary of State

*** Map Showing Alaskan Boundary Award (12 x 13 inches)**
Prepared under the direction of the U. S. Coast and Geodetic Survey

Map of Cuba (18 x 7½ inches)
Prepared under the direction of Robert T. Hill

*** Map of Manchuria and Korea (36 x 42 inches)**
Prepared under the direction of the War Department

A Series of Twenty Full-page Two-colored Charts, showing storm tracks and method of weather forecasting
Prepared under the direction of Dr Willis L. Moore, Chief U. S. Weather Bureau

*** North Atlantic Pilot Chart (22 x 32 inches)**
Prepared by the U. S. Hydrographic Office

Panorama of the Wrangell Mountains, Alaska (7 x 42 inches)
A remarkable picture, showing scores of lofty peaks in an area as large as the State of Delaware

A Series of 140 Pictures of the Philippines, showing the types of people, their manner of life and industries, their country and resources

* Out of print.

EACH MAP OR SERIES, BY MAIL, 25 CENTS

NATIONAL GEOGRAPHIC SOCIETY

Hubbard Memorial Hall, 16th and M Sts. . . . Washington, D. C.

WASHINGTON, D. C.
PRESS OF JUDD & DETWEILER (INC.)
1905

ESTABLISHED TWENTY-FIVE YEARS

BYRON S. ADAMS
Printer

512 Eleventh Street Washington, D. C.

BOOK AND MAGAZINE WORK

Unexcelled Service
Mergenthaler Linotype Machines
Every Appliance to Facilitate Work

Sole Agent in the D. C. for producing Imitation Typewriter Letters that ACTUALLY IMITATE the Machine Work

HENRY ROMEIKE'S
BUREAU OF PRESS CUTTINGS

33 Union Square New York

Reads every paper of importance published in the United States, and through its European agencies in London, Paris, Berlin and Vienna every paper of importance published in Europe and the British Colonies. One subscription on any given subject will bring notices from the United States, and if desired also from the European papers.

WRITE FOR TERMS

WE MAKE THE HALFTONE PLATES FOR THIS MAGAZINE

GATCHEL & MANNING

ILLUSTRATORS
AND ENGRAVERS

27-41 SOUTH SIXTH STREET PHILADELPHIA, PA.

THE WASHINGTON LOAN AND TRUST CO.

Capital, - - $1,000,000.00
Surplus and Profits, $556,591.33
Deposits, - - $6,467,687.00

Interest Paid on Deposits
Loans Made on Real Estate and Collateral
Safe Deposit Boxes
Real Estate Department
Trust Department

Acts as Executors, Administrators, Trustees, Agents, Etc.

JOHN JOY EDSON,
President

The NEW FALL HATS FOR MEN

Not old styles, such as were worn last season or the season before, but new blocks—all of them—made up for the fall and winter of 1905-'06. Our stock of hats never was so large nor the assortment of styles so varied as at present.

Every correct shape and shade is to be had here.

Pearl grays are selling well, especially in the very soft styles that can be telescoped or worn in several other shapes, to suit the individual taste.

Our Black Stiff Hats are self-conforming.

Soft Hats, $2.00 to $5.50 **Silk Hats, $5.50 to $7.00**
Stiff Hats, $2.00 to $5.00 **Opera Hats, $6.50**

The makers represented here are the best in their line, and their hats are as good as can be made for the price.

WOODWARD AND LOTHROP

New York **Washington** **Paris**

PRESS OF JUDD & DETWEILER (Inc.), WASHINGTON, D. C.

XUM